

NCLB's effects on teachers' perceptions, satisfaction, and career intentions

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Summary

The purpose of this study was to measure the relationship between NCLB and teachers' workplace perceptions, career satisfaction, and career intentions as well as to examine whether these outcome variables changed several years following the law's enactment. I employed two designs – one at the national-level and the other at the state-level. At the national-level, I examined the changes in public, private, and Catholic school teachers' outcomes from pre- to post-NCLB. At the state-level, public teachers were grouped according to their states' pre-NCLB accountability policies and student proficiency standards. Teachers in states with weaker school accountability repercussions prior to NCLB and high proficiency standards were expected to experience the greatest “dose” of the NCLB treatment because these schools were most likely to fail and, as a result, these schools' teachers would be introduced to the threat of sanctions linked to test results.

Teachers' responses, representative at the state- and national-levels, from the Schools and Staffing Surveys (SASS) were analyzed. NCLB was enacted in 2001 but officially implemented during the 2002 school year. Using the 2002 school year as the point of intervention, there were three pre-NCLB SASS data points (1987, 1990, 1993, 1999) and two post-NCLB SASS data points (2003 and 2007) available for analysis.

The national-level linear regression models' predictive powers were weak and therefore their results should be interpreted with caution. NCLB's treatment effect was significant for both public and non-public teachers across all of the outcome variables except for teachers' perceptions of constraints. Only public teachers' perceptions changed from pre- to post-NCLB. During this time, public teachers perceived an increase in constraints. The only

Summary (continued)

other public versus non-public contrast was that public teachers perceived more control following the law's enactment while non-public teachers perceived a decrease in control.

From pre- to post-NCLB, teachers from all three groups reported working more hours and perceived routine duties and paperwork as less of an obstacle to teaching. Public, Catholic, and private school teachers also perceived increases in teacher cohesion and principal support during this same time frame. The findings for teacher satisfaction and career intentions were mixed. From pre- to post-NCLB, Catholic teachers reported an increase in their career satisfaction while public and private teachers reported a decrease in their career satisfaction. Public and Catholic teachers reported greater intentions to stay in their careers while private teachers were less inclined to remain in teaching. For public and non-public teachers alike, it is important to also note that these treatment effects were moderated by school and teacher demographic variables as well as the other key predictors in the models (e.g., perception variables, satisfaction, and career intentions).

In the post-NCLB period from 2003 to 2007, all three groups reported working fewer hours, perceived constraints as less problematic, perceived less control, and were more inclined to leave the profession. During this same timeframe, public and private teachers perceived routine duties and paperwork as less of an obstacle to teaching. Teachers in these two groups also perceived greater principal support but reported feeling less satisfied with their career choice. Finally, public teachers were the only group to perceive a decline in teacher cohesion from 2003 to 2007.

The results from state-level linear regression models suggest NCLB's treatment effects were strongest in states with weak pre-NCLB accountability policies and low standards for

Summary (continued)

student proficiency as well as those in states with strong pre-NCLB accountability policies and high standards for student proficiency. Teachers in these two groups of states continued to experience the greatest number of changes in the outcomes of interest from 2003 to 2007.

CHAPTER I

Introduction

Teachers across the country identify the No Child Left Behind Act of 2001 (NCLB) as one of the biggest challenges in the school environment (MetLife, 2008). While there is an intense focus on measuring the law's effects on student achievement, the research and policy agenda too often negates the teacher's voice "as if addressing teachers' needs inevitably shortchanges students" (Johnson, Kraft & Papay, 2011, p. 30). It is easy to imagine that NCLB's push to raise learning expectations, prioritize traditionally low-performing students, and continuously ensure all students make adequate yearly progress (AYP) challenges many teachers. This study attempts to humanize the way we measure the effects of NCLB by examining its impact on teachers' workplace perceptions, satisfaction, and intentions to remain in the field. These elements of the workplace, when positive, are what teachers believe make effective teaching possible (Johnson et al., 2011). Students who attend schools where teachers hold positive workplace perceptions, high levels of satisfaction, and a desire to remain in teaching are more likely to achieve greater academic growth (Johnson et al., 2011).

Background

Prior to NCLB, state and federal accountability policies attempted to improve student performance. These policies called upon teachers to be instrumental actors in the reform process as both the targets of reform as well as the implementers. Analyzing the relationship between NCLB and teachers' workplace perceptions, career satisfaction, and career intentions and using those results to inform future revisions to the law is due diligence. Although many states have received NCLB waivers granting them more flexibility under the law, measuring NCLB's influence on teachers across the country and in varying state contexts offers a unique opportunity

to better understand NCLB's treatment effect on early indicators of teacher behavior and ultimately student performance. In doing so, the results of this study may provide insights that could better inform future accountability policies.

When accountability pressures mount, teachers' workplace perceptions, levels of satisfaction, and intentions to remain in teaching change. Increases in accountability pressure are linked to teachers perceiving increases in workload (Phillips & Flashman, 2007; Reback, Rockoff & Schwartz, 2011) and student engagement (Dee, Jacob & Schwartz, 2011) but decreases in perceptions of control (Phillips & Flashman, 2007), cohesion (Davies, Goldman, Gordon, & Lobdell, 2010). Accountability is also associated with decreases in professional satisfaction (McCabe, 2008) and is identified by teachers as a reason for leaving their positions (Loeb & Cunha, 2007).

While these studies identify relationships between accountability and some of the variables of interest in this study, to date, the effects of NCLB on teachers' perceptions, satisfaction, and intentions to remain in teaching remain largely unknown.

Statement of the Problems

There are two primary problems addressed by this study. The first is a policy problem. To date, we do not know enough about the effects of NCLB on early indicators of student achievement (i.e., teachers perceptions, satisfaction, and career intentions). Teachers across the country identify NCLB as one of the most significant challenges in the school environment (MetLife, 2008) and blame the law for souring attitudes toward work (e.g., Hagge & Waltman, 2008; Valli & Buese, 2007), and increasing teacher attrition (e.g., Hanushek & Rivkin, 2010). However, others suggest NCLB simply mirrors what many states had been doing for decades (Goertz, Duffy & LeFloch, 2001; Phillips & Flashman, 2007). In fact, some state officials claim

the law unnecessarily duplicates preexisting state accountability policies and their corresponding systems (Dobbs, 2005).

Prior to NCLB, a significant number of states compared annual student test scores against proficiency standards (Goertz, Duffy & LeFloch, 2001). Many states also published schools' test scores and linked school rewards and punishments to those scores (Phillips & Flashman, 2007). Still others point out that almost half of the states have "backloaded their trajectories for reaching 100% efficiency" (Chudowsky & Chudowsky, 2008, p. 1) or changed the way they calculate AYP (Chudowsky & Chudowsky, 2005) so as to delay the potential negative consequences (e.g., sanctions) outlined under NCLB (Chudowsky & Chudowsky, 2008)

Given the history of states' school accountability policies in this country and their overlap, in many cases, with NCLB, it is unclear whether the federal law itself, states' mounting accountability pressure, states' proficiency standards, or finally a combination of all of the above are to blame for teachers' perceived decline of the school climate.

The second problem addressed by this study is one of measurement. The literature linking NCLB to teachers' perceptions, satisfaction, and career intentions consists of studies that rely upon:

- small samples of teachers from a limited number of states and grades making our understanding of the national impact of NCLB on these teacher variables weak and piecemeal;
- survey results administered after NCLB was underway (e.g., Guggino & Brint, 2010; Hagge & Waltman, 2008; Hamilton et al., 2007; Rentner, et al., 2006) which fail to account for changes in teachers' perceptions, satisfaction, or intentions related to pre-NCLB state or federal accountability policies; and

- studies that fail to employ credible comparison groups. Therefore, despite their attempts to do so, most studies fall short of being able to make causal claims about the law's impact on teachers' workplace perceptions, satisfaction, and intentions to remain in the field.

To date, two studies overcome these design limitations. Dee, Jacob, and Schwartz (2011) analyzed the effects of NCLB by measuring changes in teachers' responses to items from the longitudinal, nationally representative Schools and Staffing Survey (SASS). The authors divided states into two groups – those with and those without “NCLB-like” accountability policies in place prior to the law's enactment to determine whether teachers' perceptions of student behavior (i.e., constraints in this particular study) changed as a result of NCLB. Using an interrupted time series design, they concluded that NCLB led to an increase in student engagement as measured by teachers' perceptions of student tardiness, apathy, absenteeism, etc.

The second study, conducted by Grissom, Nicholson-Crotty, and Harrington (in press), coded states according to their history of NCLB-like accountability policies using the same approach as Dee et al. (2011) and the authors also accounted for the strength of those policies as defined by Carnoy and Loeb (2002) to measure the causal effects of NCLB on teachers' perceptions of control, satisfaction, and intentions to remain in teaching. They found that NCLB positively impacted teachers' perceptions of control, satisfaction, and intentions to remain in teaching.

A key limitation to the causal designs employed by Dee and colleagues' (2011) and Grissom et al. (in press) is the way in which the states are grouped. Dee and colleagues (2011) group states solely based on whether they had accountability policies prior to NCLB'S

enactment rather than by their accountability strength. This arguably weakens the researchers' abilities to detect changes related to NCLB.

Grissom et al. (in press) recognized that all states' pre-NCLB accountability policies were not created equal. In addition to accounting for states' history of exposure to accountability policies, they take into account the variation in states' pre-NCLB accountability policies' consequences for teachers and their schools. However, the strength of a state's accountability policy under NCLB does not exist in a vacuum. To a large degree, its effects are dependent upon the student proficiency standards set by the state under NCLB. Proficiency standards, like accountability policies, vary greatly across states and their combined effect on teachers is unknown. For example, a state with strong accountability policies but low student proficiency standards is highly likely to produce an overwhelming majority of proficient students. Such a combination arguably weakens the threat of negative consequences defined by the state's strong accountability policy thereby buffering teachers from impending sanctions. Alternatively, in states with strong accountability policies and high proficiency standards, effects on teachers may be acute (e.g., Fullan, 2003; Mintrop & Sunderman, 2009).

Capturing NCLB's influence based solely on the number of years a state had accountability policies in place prior to NCLB's enactment and the strength of states' pre-NCLB accountability policies arguably oversimplifies the complex nature of state accountability policies' interplay with proficiency standards.

This study builds upon these causal studies by adding the proficiency standards element as well as incorporating additional comparison groups. While a revised analytical approach will be needed to make causal claims about how the law affected teachers, this study is a step in that direction. In the Future Research and Policy Opportunities section of this document, I discuss my

plan for continuing this line of research with additional studies designed to draw causal conclusions about NCLB's impact on teachers' perceptions, satisfaction, and career intentions.

Purpose of the Study

While studies have attempted to measure the relationship between NCLB and teachers' workplace experience, much remains unknown about the law's effects on teachers' workplace perceptions, their satisfaction levels, and their career intentions. Since teachers' perceptions of their work climate are stronger predictors of student achievement in math and reading than the student demographics within a given school (Johnson et al., 2011), measuring the law's effects on teachers' perceptions as well as their subsequent satisfaction and career intentions is critical.

To address the measurement problem outlined earlier, my study's design takes advantage of longitudinal teacher survey data that are representative at the national and state levels. I also apply a more comprehensive measure of accountability by defining NCLB in terms of states' pre-NCLB accountability policies as well as the difficulty of their students' proficiency standards. This study is the first of its kind to attempt to account for the complex nature of accountability on such a broad set of critical teacher outcome variables.

At the national-level, I employed a linear regression model to measure the relationship between NCLB and teachers' perceptions of their workplace, satisfaction, and intentions to remain in teaching. This design enabled me to examine whether the enactment of NCLB correlated with changes in the outcomes of interest for public, private, and Catholic school teachers.

While my national-level comparison is the first of its kind to measure the relationship between NCLB and the outcomes of interest for public versus non-public teachers, it masks the variation in states' pre-NCLB accountability systems (Wong, Cook, & Steiner, 2009). In other

words, public school teachers in states with weak accountability systems may have experienced the NCLB's effects to a greater degree than those in states that had NCLB-like accountability policies already in place prior to the law's enactment.

Unlike previous studies that defined teachers' exposure to the influence of NCLB in terms of how long a given state had an accountability system prior to the law's enactment (e.g., Dee et al., 2011), I employ a more sensitive measure of the law by defining the influence of NCLB in terms of what Mintrop and Sunderman (2009) identify as the two main components of accountability systems: performance standards for tests and consequences for failing to meet the performance targets (i.e., pressures, sanctions). Specifically, as cited by Mintrop and Sunderman (2009),

“by their very nature, pressures and sanctions should be perceived as more negative than standards and tests, the former being more controlling, the latter being more informative (Frey, 1997). Sanctions are penalties for noncompliance with authoritative regulations or powerful demands. They may inflict loss of benefits, prestige, or status on individuals or collectives and trigger attendant feelings of displeasure, shame, or fear (Posner & Rasmussen, 1999)” (p. 354).

Using Carnoy and Loeb's (2002) ratings for the strength of states' pre-NCLB accountability policies in terms of their pressures and sanctions and Wong et al.'s (2009) codes for states' student proficiency standards, I examine the relationship between NCLB and the outcomes of interest for teachers in four groups of states – those with high proficiency standards that either did or did not have strong school accountability repercussions prior to 2002, and those with low proficiency standards that either did or did not have strong school accountability before 2002.

Theoretically, NCLB has more “teeth” in states with high proficiency standards because a greater number of schools are more likely to fail to make the state proficiency benchmarks and, therefore, ultimately face sanctions (Wong et al., 2009). Even higher performing schools in high proficiency states may change in fear of future failure and its corresponding consequences (Wong et al., 2009). Teachers in states with weaker school accountability repercussions prior to NCLB and high proficiency standards may experience the strongest NCLB dose because their schools are more likely to fail and the teachers in those schools are not accustomed to the threat of result-driven sanctions.

By defining accountability systems according to the strength of their consequences as well as the likelihood that those consequences will be felt by teachers and schools (as determined by the rigor of their proficiency standards), this study attempts to capture the effects of NCLB while accounting for the complex nature of state policies.

Like the national-level model, this state-level model measures the correlation between NCLB and public teachers’ perceptions, satisfaction, and career intentions. By taking a longitudinal view and including multiple comparison groups, these are strong designs for measuring the correlation between the law and the outcomes of interest. A final strength of this study is the survey data. Unlike many of the post-NCLB surveys designed to ask teachers about the law specifically, the SASS used for this study consists of items that speak to broader issues predictive of student achievement (i.e., school climate, teacher satisfaction, and career intentions). These items were asked over the last twenty years. Since none of them are NCLB specific, teachers were not consciously or unconsciously swayed to answer differently due to the rhetoric surrounding the law. Rather, the teachers’ responses to the items get at the broader

picture about the law's influence – perhaps beyond what politicians had in mind when the law was conceived.

On the other hand, due to the nature of the SASS data, this study is limited to only two post-NCLB surveys measuring teachers' perceptions, satisfaction, and career intentions. While I will be able to determine whether there was a shift in these teacher variables from pre- to post-NCLB, this data set limitation prevented me from definitively proving (or disproving) any post-NCLB trends in teachers' perceptions, satisfaction or career intentions. Having said this, when the U.S. Department of Education releases its next round of survey data from the SASS, I will be poised for incorporating those data and re-running the analyses for future publications.

Despite these limitations, this study makes several unique contributions to the existing research. First by using the longitudinal SASS data, this study relies on consistent and nationally representative measures of teachers' perceptions, satisfaction, and career intentions. These data cover timeframes both before and after the implementation of NCLB. By relying on SASS data rather than the surveys designed to specifically measure the effects of NCLB, the respondents may have been less likely to hedge their answers for fear that negative responses would undercut funding, or, on the other hand, be influenced by the national rhetoric and therefore be swayed to answer differently (e.g., Lerner & Tetlock, 1999).

Although SASS covers a range of topics such as teachers' perceptions of school climate and basic characteristics of the student population, it does not consistently tap into teacher-specific practices over time. Therefore, while I am unable to focus on NCLB's effects on instructional practices that are central to the policy's logic or efforts to game the system, I do measure the relationship between NCLB and outcomes that are known to be predictive of student

achievement and that exist in all schools independent of the accountability context – teachers’ perceptions, satisfaction, and career intentions.

Second, this study is the first of its kind to measure NCLB’s effects on public school teachers versus their non-public school colleagues. The inclusion of these comparison groups strengthens the study’s findings. Finally, by defining the NCLB “intervention” in terms of the strength of states’ pre-NCLB accountability policies as well as their proficiency standards, this study is the first to measure the combined effects of changes in accountability and standards on teachers’ perceptions, satisfaction, and career intentions.

In the following chapter, I present the conceptual framework guiding this study (see Figure 1). The visual depicts the interrelatedness of teacher workplace perceptions, satisfaction, and career intentions in the context of accountability. I break down these relationships and expand upon why determining whether these indicators of student success changed following the law’s enactment is warranted.

CHAPTER II

Conceptual Framework and Related Literature

Too often the traditional research paradigm “overemphasizes linearity, rationality, and formal structure; and it overlooks vital realities of context, human psychology, and the process of change... In its place we need a conceptual framework that acknowledges the real world of people, institutions, and change” (Evans, 1996, p. 9-10). The conceptual framework guiding this study is designed to do just that. At its core, it is an attempt to map out the complex relationships between changes in accountability pressure, human psychology, and ultimately teacher behavior. It encapsulates the multiple levels (i.e., federal, state, local, and personal) and dimensions (i.e., structural, social and political) affecting teachers’ perceptions, career satisfaction, motivation, career intentions, and ultimately student performance (see Figure 1).

The conceptual framework depicted in Figure 1 suggests that accountability policies as well as school and teacher demographics directly influence teachers’ perceptions. Teachers’ perceptions and levels of satisfaction share a reciprocal relationship. Positive perceptions lead to higher levels of satisfaction and those same perceptions are then again colored by teachers’ levels of satisfaction. Teacher satisfaction is also strongly predictive of teacher motivation which predicts career intentions. Together, these variables ultimately influence how students perform on the tests linked to the accountability policies themselves. The names of the dependent variables in my study are bolded in Figure 1 (i.e., workplace perceptions, satisfaction, and career intentions). The variables in bolded boxes and arrows are predictors in the study.

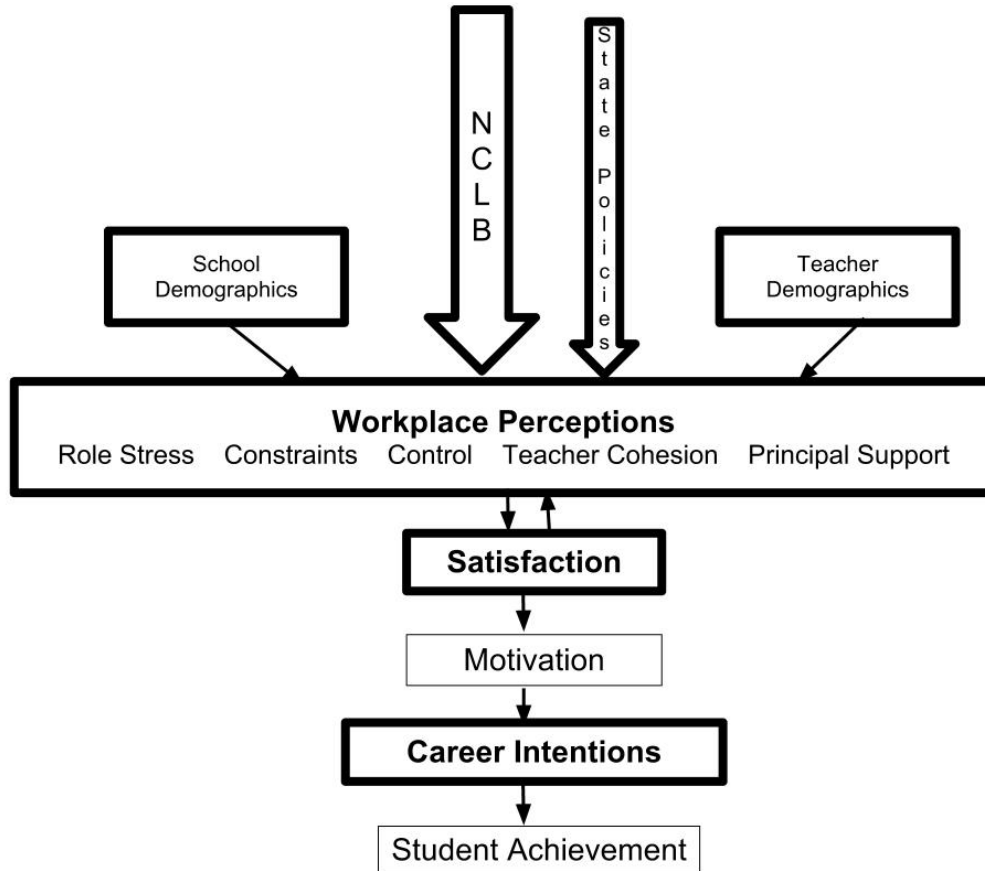


Figure 1. Conceptual framework depicting the interrelatedness of accountability, teachers' workplace perceptions, career satisfaction, motivation, career intentions, and student performance. The bolded boxes and arrows are predictors in this study. The outcome variables' names are in bold.

When analyzing educational reform initiatives, organizational theorists focus on aspects of the education system while policy analysts spend more time examining characteristics of the reform; however, organizations and reform policies do not operate independently (Swanson & Stevenson, 2002). According to Swanson and Stevenson (2002),

educational change may be a product of both the complex organizational and governance relations within the educational system and also the loosely coupled design of earlier reform strategies. Consequently, an examination of the relationship between reform designs and the political and organizational environments in which they are implemented should occupy a more prominent place in the empirical study of educational change processes (p.18).

By examining trends in teacher perceptions, satisfaction, and career intentions with relationship to accountability policies, this study takes into account the organizational and political environments that make-up the educational change process.

The literature is filled with studies underscoring the link between perceptions, career satisfaction, and career intentions (e.g., Ingersoll, 2001; James et al., 2008; Parker et al., 2003; Carr, Schmidt, Ford, & Deshon, 2003). However, to date, no one has applied this literature when designing a study to make claims about the relationship between NCLB and teachers. To my knowledge, this is the first time all of these early indicators of student performance are united in one framework and studied in the context of state and federal accountability policies. The benefit of applying such a model is that only when we take a holistic view of multiple levels of accountability and their potential effects are we able to begin to truly understand how the policies are potentially benefiting or harming those they depend upon most – teachers.

Accountability Theory

Starting with the top of Figure 1, I will first explain why I hypothesize there is a link between accountability and teachers' workplace perceptions and why measuring the influence of accountability on these perceptions is important. There is a widely held assumption that accountability drives performance ($A \Rightarrow P$) (Dubnick, 2005). Mintrop (2004) theorizes that

policymakers believe the threat of sanctions will motivate teachers and school leaders to improve classroom instruction and ultimately student performance. “Such policies assume that targeting the school unit will generate the necessary and desired changes in the behavior of individuals within that unit” (O’Day, 2002, p. 3). While countless policies are crafted based on these assumptions, relatively little is known about the “precise formulation of the relationship” (Dubnick, 2005, p. 379).

Accountability policies from the perspective of a teacher may be a source of stress. Independent of whether accountability is a negative stressor or a positive one, there are strong parallels between various occupational stress models and the patterns of accountability exposure within states and across the country. For example, the “accumulation model” refers to the scenario in which exposure to stress (e.g., accountability) increases steadily and stabilizes “at some ceiling level”; however, in the “dynamic accumulations model,” the stress increases exponentially (Bradley, 2007). Between these two extremes is the “adjustment model” in which employees learn strategies to manage the stress and therefore it declines (Bradley, 2007). Finally, “job stressors may have little initial impact ...and may begin to cause problems only after a lengthy period of exposure (the “sleeping effect” model)” (Bradley, 2007, p. 49).

Teachers and schools tend to respond to external pressures affiliated with accountability policies in one of three ways. In a conflict driven scenario, the crisis stemming from the external pressure for change may motivate teachers and principals to “acquire, analyze, understand and plan around information that arises from the environment and from internal monitoring (Louis & Kruse, 1998, p. 18). Another possibility is that environmental pressures may cause stress which restricts teachers’ information processing and encourages teachers to continue to carrying out the strategies they’ve depended upon in the past but attempt to do so with greater efforts. This type

of reaction as described in Staw's threat-rigidity model (Staw, Lance & Dutton, 1981) often prevents schools from being able to turn themselves around because the group tends to believe that failure is inevitable and dissension arises. A third sanction-induced outcome is that schools will initially improve because of external pressure; however, incorporating new strategies for continuous improvement is difficult and therefore schools are likely to slip back into the dominant patterns of operation that led them to being sanctioned in the first place (e.g., Newman, King & Rigdon, 1997).

Perhaps the most significant insights into why teachers respond to accountability in so many different ways may be gleaned from the years of experiments conducted by Tetlock and colleagues across a variety of industries (Tetlock, 1980, 1983a, 1983b, 1985; Tetlock & Boettger, 1989; Tetlock & Kim, 1987; Tetlock, Skitka, & Boettger, 1989). The work of these social psychologists suggests "...accountability alters fundamental cognitive processes such as how people perceive, encode, and retrieve information...this cognitive-process holds that accountability pressures moderate basic processes of human thought" (Lerner & Tetlock, 1999, p.266) and ultimately drive action (James, 1983). Specifically, those held accountable "produce a more thorough search, in memory and in the environment, for information that is relevant to the task (Schlenker & Weigold, 1989, p. 26). "This increased assessment...permits the individual to gather data, examine possible impediments, and take action" (Schlenker & Weigold, 1989,p. 24).

When applied to teachers specifically, these findings imply accountability pressures may correspond with teachers examining their workplace and their colleagues in a new way. But why does a re-examination of the workplace in an accountability context matter for teachers and ultimately students? Thanks to the work of industrial organizational researchers (e.g., Brass, 1981; James & Jones, 1974; Hackman & Oldham, 1976; Locke, 1976; Oldham & Hackman,

1981; Rousseau, 1977, 1978a, 1978b), we know that individuals respond to environments in terms of how they perceive them. These perceptions are “psychologically meaningful representations of proximal organizational structures, processes, and events (James, et al., 1978; Rousseau, 1988 as cited in Parker et al., 2003, p. 390)” that encompass an individual’s affective reactions to change (Lewin, 1936).

According to James and Jones (1974), individuals typically formulate their general workplace perceptions based on their evaluations of four workplace attributes they tend to value most: leadership, role stress, job autonomy, and collegial cooperation. In addition to these valued workplace attributes, employees’ perceptions of constraints (Campbell, Dunnette, Lawler, & Weick, 1970; Dachler & Mobley, 1973; Schneider, 1978; & Terborg, 1977) are also critical. Constraints are believed to have a negative impact on performance because they block individuals from obtaining their goals on the job (e.g., Peters & O’Connor, 1980). As a result, employees (especially those with the greatest ability) are left feeling frustrated, highly dissatisfied and less motivated to perform (Peters & O’Connor, 1980).

An individual’s perceptions of these workplace attributes mediate “the relationship between environmental events and affective reactions to those events (Brass, 1981; Hackman & Oldham, 1976; Locke, 1976; Oldham & Hackman, 1981; Rousseau, 1977, 1978a, 1978b)” (James, et al., 2008, p. 13). In the context of education, this suggests changes in accountability policies (at the state and federal levels) are filtered through teachers’ workplace perceptions. That filtering process influences teachers’ satisfaction levels which then predict teachers’ career intentions and ultimately have implications for student achievement (Carr, Schmidt, Ford & Deshon, 2003; Kopelman, Brief & Guzzo, 1990; Parker, et al., 2003). Satisfaction also shares a reciprocal relationship with perceptions. This powerful filtering process is depicted in Figure 1.

The rationale for this study is that by examining whether NCLB influences teachers perceptions, satisfaction, and intentions to remain in teaching, we begin to develop a deeper understanding of the complex relationship between accountability and ultimately changes in student test scores. My model underscores the important, although often overlooked, roles that perceptions, satisfaction, and career intentions play in schools. Studying the effects of accountability on early indicators of student performance will add a unique contribution to the literature and may serve as a resource for informing future accountability policies.

With the overview of the figure in mind, I will define the specific variables within the conceptual framework. I begin at the top of the figure. To best understand NCLB and the state accountability policies that preceded it, I believe it is best to discuss them in terms of their historical context.

Waves of Accountability

From the 1980s to the present, teachers have experienced three distinct waves of accountability policies – each designed to increase student achievement. With each wave policymakers’ disappointment swelled because student test scores fell short of the gains envisioned. As external pressures mounted with each reform, especially those thrust upon educators during the most recent wave, teachers’ perceptions, satisfaction, and intentions to remain in teaching may have significantly changed. Despite decades of disappointment, there was little to no energy invested in understanding how these policies influenced those responsible for implementing them – teachers.

First wave. Spurred by the 1983 release of *A Nation at Risk*, the first wave of reform consisted of a significant increase in state mandates particularly with regards to student achievement (Fuhrman, Clune, & Elmore, 1988). In response to the report’s reform

recommendations, policymakers focused on increasing: 1) the length of the school day, 2) high school graduation requirements, 3) minimum competency tests of students' basic skills, and 4) standards for teacher certification (Center for Policy Research in Education, 1991; Superfine, 2008).

Prompted by the report's recommendations, over a dozen states established testing programs by the mid-1980s (Andeln, et al., 1987). These tests laid the groundwork for the "high-stakes" testing used today (Koch, 1999). While testing became increasingly important during this wave of accountability reform, state monitoring and accreditation programs were the primary mechanisms used to ensure compliance with state "input and process standards" (Goertz, 2001, p. 39).

Second wave. In reaction to the limited success of the first wave of reform, a governors' task force convened and issued another prominent report, "Time for Results" (Koch, 1999). The report called for a "horse trade" in which state governments would give local schools and districts more control over curriculum and instruction in exchange for more accountability. "If schools agreed to become accountable for student performance, states would allow schools to pursue their own education reform" (Superfine, 2008, p. 25).

Leading up to this influential report, critics had been advocating for local control of curriculum and instruction in the form of site based management (Marks & Louis, 1997). Large-scale, longitudinal studies had shown that "some schools, particularly those that were more cohesive and more focused on academics, performed better than others, even within the same district (Edmonds, 1979; Lee & Bryk, 1988; Purkey & Smith, 1983, as cited in Fuhrman, 2004, p. 7).

While states continued to push for more academic courses and changes to teacher certification and compensation (Center for Policy Research in Education, 1989), local schools were given a voice in the policy making process. Specifically, principals and teachers were required to make decisions regarding curricula, instruction, and assessment (Marks & Louis, 1997; Marks & Printy, 2003) in cooperation with local councils and parent associations (Marks & Nance, 2007). The local reform efforts did not appear to significantly improve the education students received (Superfine, 2008). They tended to be unrelated to each other and at times contradictory (Superfine, 2008). As a result, the reform pendulum that had swung from state control to local control did not stay there long.

Third wave. In 1989, the nation's governors and President George H.W. Bush convened for an Education summit. The governors stressed that states needed to focus their efforts on educational improvement efforts rather than developing "models of excellence and innovation" (Tirozzi & Uro, 1997). The attendees also reaffirmed that education was a state responsibility but that the states would need the federal government's support in the way of finances, research, and assistance in spreading effective practices (Tirozzi & Uro, 1997).

In the early 1990s, there was a shared belief that school reform efforts in waves one and two fell short in terms of their intended effects on student achievement because of disjointed and inadequate efforts (Fuhrman, 1993). By 1993 ESEA was up for reauthorization. Legislators believed this was an opportune time to unite the states' efforts by moving toward the establishment of rigorous national education goals (Tirozzi & Uro, 1997). And so began the third wave of reform in which the policymaking focus shifted from manipulating processes and inputs to setting additional standards for products and outcomes (Mathers & King, 2001). The ESEA was reauthorized and the additions to the law became known as the 1994 Improving

America's Schools Act (IASA). The act required all states to test student proficiency in math and reading at least once during grades three through five, six through nine, and 10 through 12 (U.S. Department of Education, n.d.). As a result, the requirements for schools, and particularly teachers, also shifted. The challenge placed before educators changed from one of compliance to one of performance (Mathers & King, 2001). Practically every state took back significant amounts of control of its schools through the establishment of assessment and accountability systems designed to increase the pressure placed on teachers to have their students produce high scores (Conley, 2003; Lugg, Bulkley, Firestone, & Garner, 2002).

Although the efforts states put forth and their approaches to raising standards varied (Hannaway & Kimball, 1997), there were four policy drivers that they shared in common. Specifically, states created

- content standards that clearly stated what students at specific grade levels should know;
- performance standards that dictated what students at specific grade should be able to do;
- assessments aligned with the content and performance standards; and
- professional standards designed to ensure that teachers would be trained and certified to teach the high standards curriculum (Swanson & Stevenson, 2002).

Despite states' efforts to create accountability policies that included rewards and sanctions tied to student outcomes on the tests aligned with state standards, teachers, especially those who worked outside of urban areas, were unlikely to feel pressured by the new external accountability systems (Firestone & Mayrowetz, 2000). According to an analysis of teacher perceptions across eight states, regardless of the state's reward and sanction policies, teachers often perceived schools, rather than themselves, as being more accountable for student achievement (Goertz, 2001). Teachers from Colorado repeated this sentiment in a survey administered to those

working in small, medium and large school districts. Independent of district size and demographics, these teachers felt “a very low sense of accountability to all government levels” (Mathers & King, 2001, p. 31). They felt “first accountable to themselves, second to their students, next to groups who affect the classroom (principal, other teachers) and finally to external groups” (Mathers & King, 2001, p. 29).

In spite of teachers’ claims regarding to whom they felt accountable, states’ pre-NCLB accountability policies did influence teachers’ behaviors and perceptions of the workplace. For example, Elmore and Fuhrman (2001) found that lower performing schools, such as those concentrated in poor and urban settings, often reacted to the external pressure by “doing the same things they were doing, only doing them harder” (p. 70). Supporting this finding, Phillips and Flashman (2007) found that urban teachers were more likely to report an increase in their workload that corresponded to the reforms of the 1990s. These same teachers also reported lower levels of autonomy than their rural and suburban counterparts (Phillips & Flashman, 2007). While those in higher-performing schools, such as those concentrated in wealthier settings, responded to high-stakes more creatively (Elmore & Fuhrman, 2001), they also experienced increased levels of turnover (Phillips and Flashman, 2007).

Despite the negative influence of accountability policies on teachers, the accountability movement gained momentum and culminated with the passage of NCLB in 2001. An impetus for the passage of the law was that long-term trends from the late 1980s to 1999 indicated a widening of the achievement gap in NAEP scores equivalent to three grade levels between high- and low-poverty schools (Superfine, 2008). In an attempt to improve the learning opportunities for all children and thereby reduce the achievement gap, NCLB’s major provisions required states to:

- align their state tests with their own curriculum standards;
- establish a timeline projecting the percentage of students who would meet or exceed states' performance standards with the expectation that all students would be proficient in reading, math, and science by 2014;
- annually assess students in grades three through eight in 2005-2006 for reading and math and 2007-2008 in science;
- publish schools' test results and AYP;
- sanction schools that failed to meet their performance targets; and
- require all teachers to be highly qualified by 2006-2007

As is evident by the timeline for these provisions, the NCLB “treatment” would not be administered in one dose but rather rolled out over time and vary according to each state’s context. Notably, a key early requirement was that all teachers be “highly qualified” by ensuring they were certified or in the process of getting certified, and for middle and secondary teachers, that they had sufficient content-based coursework in subject areas. The logic was that only after teachers were “highly qualified” would schools be accountable through annual testing in grades 3-8. Even as omnibus legislation though, teachers daily lives were touched very soon after passage of the law.

Although these provisions and their timelines received the most attention, the law also authorized multiple programs and grants to support these requirements. These NCLB-specific resources, however, were not limited to public schools (see Appendix A). Public school districts were required to distribute funds for these programs to non-public schools on an “equitable basis” (United States Department of Education, 2007). So, per the example released by the California Association of Private School Organizations (n.d.), if a public school district with

90,000 students earmarked \$1 million for teachers' professional development and an additional 10,000 students within the district's boundaries attend non-public schools, these non-public schools were eligible for \$100,000 in the aggregate to spend on professional development for their teachers but they were not required to implement any of the law's accountability provisions listed earlier.

Only 44 percent of non-public schools took advantage of one or more these additional resources because they either did not know about them or they opted to not take part in the federally funded programs (United States Department of Education, 2007). Since these non-public schools were not exposed to the NCLB accountability, testing, and standards provisions, but they did have the opportunity to benefit from NCLB programs and funding, they "are not quite a no-treatment control group, but they are close to it" (Wong, et al., 2009, p. 12).

NCLB's Influence on Public School Teachers

Although public school teachers viewed NCLB's accountability benchmarks as unrealistic, "the humiliation or discomfort of working in a publicly labeled low-performing school seems to trigger an initial surge of energy and determination, if not frenzy, among educators to meet the goals" (Finnigan & Gross, 2007; Fullan, 2003; Malen, Croninger, Muncey, & Redmond-Jones, 2002; Mintrop, 2004, as cited by Mintrop & Sunderman, 2009, p. 360). Unlike the pre-NCLB teacher reaction to accountability, post-NCLB reports suggest teachers felt more accountable to external agencies. For example, Hagge and Waltman (2008) asked a representative sample of Iowa elementary, middle and high school teachers in 2004 and again in 2006 to identify sources of pressure driving them to increase student test scores. Independent of grade level, teachers felt the most pressure from government and reported more acute pressure in

2004 than 2006. At both time points, however, elementary teachers reported feeling more pressure than those in middle and high schools.

This drop in perceived pressure from 2004-2006 may be somewhat surprising given that NCLB was designed to ramp up pressure over time through sanctions, school closings, and its requirement to have all students reach proficiency in math and reading by 2013. However, when one considers that “the *momentum* of change is important” (Weir, 1996, p. 514), the responses become somewhat intuitive.

Initially, teachers – especially those in states, like Iowa, with fewer years of accountability policies in place – may have undergone a “mould breaking” change process to meet federal requirements. This disruption may have lead to “organizational and personnel discontinuities that affect[ed] the entire workplace” (Weir, 1996, p. 515). Others in states that established their accountability systems well before NCLB may have experienced an “incremental change processes” to which teachers may have easily adjusted (e.g., Weir, 1996, p. 515).

Given that some states experienced a severe increase in pressure, it is plausible that trends in teachers’ perceptions, satisfaction, and career intentions could significantly change after the passage of NCLB but, like the Iowa sample, the influence of the law may wear off over time, given that teachers may adapt to those same pressures and accept that “all schools will eventually be on the ‘list’” (Hagge & Waltman, 2008, p. 40).

This study’s results speak to whether teachers experienced significant changes in their perceptions, satisfaction, and career intentions not only from pre- to post-NCLB but also whether these early indicators of student achievement significantly changed from the onset of the law to seven years following its enactment.

Given that past accountability policies were not consistently producing their intended effects on students, a closer examination of their effects on teachers – the most powerful in-school factors predicting student achievement - is warranted.

Workplace Perceptions

In the following paragraphs I define the teacher perception variables that are theoretically and empirically correlated with teacher performance and student success. I make a case for why they are critical in the conceptual model driving this study. I discuss the variables in the order they are presented in the workplace perception box displayed in Figure 1. I begin with teachers' perceptions of role stress and conclude with their perceptions of principal support.

It's easy to imagine the changes brought on by the accountability waves altered the way in which teachers perceived their work environment. Although others may counter that there is a difference between perception and reality (e.g., Nance & Marks, 2008), employees' perceptions have important effects on individual and organizational outcomes (Parker et al., 2003). For this reason, a widely accepted practice across schools and other organizations alike is the administration of workplace climate surveys. These diagnostic tools assist employers in gauging their employees' perceptions across a variety of workplace domains in an effort to identify where improvements may be made (Burke & Litwin, 1992; Church & Wacławski, 1998; Kraut, 1996; Ricci, Kim, & Quinn, 1998). As noted by James et al. (2008),

Locke (1976) proposed that four latent factors underlie most important personal, work-related values. These latent factors are (1) desires for clarity, harmony, and justice; (2) desires for challenge, independence, and responsibility; (3) desires for work facilitation, support, and recognition; and (4) desires for warm and friendly social relations (p. 9).

James and James (1989) suggested that these personal values held by individuals mapped well onto the psychological climate perception variables that industrial organizational psychologists had been studying for decades. Appendix B contains the perceptual variables commonly measured in the workplace by James and others under the corresponding value identified as defined by Locke (1976).

It follows logically if the values held by an individual are fulfilled within an organization, then the employee will be a more productive worker. Parker and colleagues' (2003) tested this line of thought. The results of their meta-analysis of 94 studies representing a variety of occupational groups (including teachers – e.g., Kleinsasser, 1993; Michela, Lukaszewski & Allegrante, 1995) suggested that perceptions of these workplace domains are significantly related job performance. The authors also found that employees' work attitudes and motivation mediated the perception-performance relationship. Simply put, perceptions influence work attitudes and motivation which in turn affect performance. This model is at the core of the conceptual framework guiding this study.

In the following paragraphs, I provide an overview of how teachers' perceptions of these workplace domains relate to their satisfaction, motivation, and career intentions. A thorough review of the complex relationships between these variables will underscore that perception is (almost) everything when it comes to teacher satisfaction, career intentions, and ultimately student performance.

Role stress. Perceptions of role stress are commonly linked to employee satisfaction, commitment, and performance (e.g., Jackson & Schuler, 1985; Parker et al., 2003; Rizzo, House & Lirtzman, 1970). In this study, two dimensions of role stress are being studied – teachers' perceptions of work overload (Rizzo et al., 1970) and role conflict (Bacharach, Bamberger, &

Mitchell, 1990; Greene, 1978; Kemery, Mossholder & Bedeian, 1987; Miles, 1976; & Rizzo, House & Lirtzman, 1970).

Work overload – refers to one’s perception that there are too many responsibilities to fulfill, given the limitations of time, abilities, and other constraints (Rizzo et al., 1970). As mentioned earlier, increased accountability is linked to increased perceptions of teachers’ workloads (Phillips & Flashman, 2007; Reback, Rockoff & Schwartz, 2011). Teachers are reportedly "working harder" in reaction to high-stakes accountability measures (Ballet, Kelchtermans, & Loughran, 2006; O'Day, 2002; as cited by Valli & Buese, 2007). This is largely due to the fact that teachers are being asked to do more during and beyond school hours under heightened local, state, and federal expectations (Valli & Buese, 2007).

Role conflict is an incompatibility of demands (Bacharach, et al., 1990; Greene, 1978; Kemery et al., 1987; Miles, 1976; & Rizzo, et al., 1970) such that fulfilling one obligation would make completing the other difficult (Kahn, Wolf, Quinn, Snoek & Rosenthal, 1964; Katz & Kahn, 1978). For example, additional paperwork and other routine duties perceived by teachers to be obstacles to their efforts to increase student academic achievement may be a source of conflict for teachers (Ma & Macmillan, 1999). This conflict, in extreme cases, may be a cause for some teacher to “exit from the profession” (Albert & Levine, 1988 as cited by Ma & MacMillan, 1999, p. 40).

Constraints. Individuals’ perceptions of role stress may be further exacerbated by their perceptions of constraints which are the “inhibiting conditions not under the control of the individual” (Campbell & Pritchard, 1976, p. 65). It is not surprising that this construct was not included by Locke (1976) or James and Jones (1974) because these authors identified the workplace factors that are valued by employees. On the contrary, constraints are typically

obstacles to be avoided. However, in the context of education, constraints are often studied in relationship with teacher retention and ultimately student achievement (e.g., see Ostroff, 1992). One type of constraint studied by educational researchers is teachers' time limitations. In national surveys, teachers consistently identify lack of time as an inhibitor to their performance and students' opportunities to learn (e.g., Doherty, 2001). Faced with testing timelines dictated by consequential accountability policies, teachers often feel pressed for time in their attempts to cover all the required material. According to survey data, over 70 percent of teachers report they are not able to meet state standards because they do not have enough time to teach the content required by their states' curriculum frameworks (Doherty, 2001).

Chronic levels of student absenteeism and tardiness further exacerbate the time constraints placed on teachers. The amount of time students spend in the classroom is directly related to their access to education (Dekalb, 1999). Being accountable for students mastering content when students consistently arrive late to class or skip it entirely must be perceived as a constraint. These disruptions to instructional time also interfere with other students' learning opportunities (Flanagan & Murray, 2002). Although high levels of absenteeism are often a result of issues occurring in a student's personal life, they are also an indicator of school climate (Teasley, 2004). Schools with high levels of constraints often have dissatisfied teachers and high turnover rates (Ma & MacMillan, 1999; Thompson, McNamara & Hoyle, 1997).

Control. When working long hours to fulfill competing demands and perceiving high levels of constraints, teachers are bound to perceive that they have little control over the work that they do. According to Ingersoll's (1996) analysis of the SASS data, teachers' perceptions of control exist along two dimensions – instructional and social. Determining the social and instructional elements within one's classroom and acting without consulting one's principal is

significantly correlated with teachers' commitment to the school (Dee, Henkin, & Singleton, 2004), motivation, satisfaction, and retention (Spector, 1986) as well as effectiveness (Sweetland & Hoy, 2000) and possibly student achievement (McLaughlin, et al., 2000; Sweetland & Hoy, 2000).

Some argue accountability policies deplete teachers' perceptions of control because they empower higher level administrators to make decisions that infringe upon teachers' professional autonomy (Banicky & Noble, 2001; Roellke & Rice King, 2008). As external influences increase, teachers perceive lower levels of control (Nance & Marks, 2008) especially when they are required to implement scripted curricula leaving no room for creativity (Reichardt, Snow, Schlang & Hupfeld, 2008). When perceived control is depleted, teachers question whether their time and effort are "for naught" (Firestone & Pennell, 1993, as cited in Berry et al., 2008, p. 12). Given the negative effects of accountability on teachers' perceived levels of control, it is not surprising that teachers cite these policies as their primary reason for leaving the classroom (Buckley et al., 2004; Darling-Hammond, 1997).

Teacher cohesion. Researchers are quick to point out that sources of stress within the workplace are often buffered when employees perceive high levels of cohesion in their workplace (e.g., Viswesvaran, Sanchez, & Fisher, 1998). A cohesive workplace is the strongest predictor of one's job satisfaction and commitment across multiple job sectors (education included; Parker, et al., 2003). A cohesive school environment is one of the most significant factors influencing whether teachers choose to continue to not only work in their current schools (Loeb & Darling-Hammond, 2005, as cited in Berry, Smylie, & Fuller, 2008) but remain in the profession (Johnson, Kardos, Kauffman, Liu & Donaldson, 2004).

Perceptions of colleagues' friendliness and trustworthiness, the pride felt to be associated with peers and their accomplishments, and the perceived cooperative efforts shared by co-workers are all indicators of perceived collegial cohesiveness (e.g., Baltes, Zhdanova & Parker, 2009; James & Sells, 1981).

While some may consider teacher cohesion to be unproductive (e.g., Granovetter, 1982), especially if shared goals and teaching methods are not in students' best interests, cohesion has been found to be a significant predictor of student achievement (Kitmitto, 2006). This predictive relationship may be due to the professional cooperation that is more likely to occur within a cohesive work setting. These collaborative efforts have the potential to lead to professional development and higher quality classroom practices (Johnson, 1990; Little, 1982, Rosenholtz, 1989; Smylie & Hart, 1999 as cited in Smylie & Allen, 2005).

Perceived collegial cohesiveness also buffers negative effects of role stress – especially in less experienced teachers. New teachers with higher levels of social support were found to be less likely to leave their jobs when faced with demanding workloads, compared to those with less support (Pomaki, DeLongis, Frey, Short, & Woehrle, 2010). The reason for this, the authors demonstrated, was that the higher levels of cohesion lead to greater levels of satisfaction which decreased the novice teachers' chances of turnover.

Since NCLB, collaboration efforts may have been somewhat discouraged due to the prescriptive nature of the revised curricula (e.g., Rentner et al., 2006). However, the National Education Association's (NEA) members perceive more collegial collaboration occurring. In the 1980s, just 12 percent of teachers perceived their colleagues to be sources of help. By 2001, that percentage nearly doubled with 22 percent of teachers reporting that they collaborate (Smylie & Allen, 2005). Results from a longitudinal MetLife Survey of the American Teacher (2008) of a

nationally representative sample of teachers suggested similar increases. Given the benefits of a cohesive school climate and the inconclusive evidence on accountability's effects on cohesion, establishing whether teachers' perceptions of this critical dimension of the workplace has changed as a result of NCLB will be an important contribution of this study. Determining whether pressure from consequential accountability correlated with a sense of competition between teachers, eroded cooperation and created a blame culture within schools (e.g., Wiggins & Tymms, 2000) or, on the contrary, fostered an increase in teacher collaboration (Davies, Goldman, Gordon & Lobdell, 2010) will be a significant insight into the effects of NCLB.

Principal support. In addition to teachers' perceptual observations about colleagues, perceptions of principal support matters – especially for those who are just beginning their careers. (Buckley, Schneider & Shang, 2004 as cited by Berry et al., 2008). Those who feel supported are also more likely to report feeling more satisfied (Littrell, Billingsley & Cross, 1994), work harder (Firestone & Pennell, 1993; Littrell et al., 1994) and remain in their positions (Ingersoll, 2001; as cited in Wolfe, Ray & Harris, 2004).

Principals play many roles. One role fulfilled by principals is the establishment of the school vision (Leithwood, Steinbach, & Jantzi, 2002) and the provision of the necessary resources to fulfill that vision (Bryk, Camburn, & Louis, 1999; Louis, Marks, & Kruse, 1996; Rosenholtz, 1989; Smylie & Hart, 1999). According to Roberston and Tang (1995), the vision is a means through which leaders are able to foster commitment and cooperation within an organization. Principals also play a supportive role which typically includes assisting teachers in their struggles with student misbehavior, buffering teachers from forces that may distract from their classroom teaching, and limiting non-teaching responsibilities (Berry et al., 2008).

Longitudinal surveys of teachers' perceptions of their principals' support are mixed. Teachers affiliated with the NEA increasingly perceive their principals as hindrances and a major reason for leaving the teacher workforce (Smylie & Allen, 2005). However, others found that "teacher perception of administrative support has remained relatively constant over the past quarter of a century" (MetLife, 2008, p. 111).

"Although a wide range of working conditions matter to teachers, the school culture, the principal's leadership, and relationships among colleagues are most important" (Johnson et al., 2011, p. 1). For this reason, I renamed Locke's (1976) terms "work group cooperation, friendliness, and warmth" and "leadership facilitation and support" to teacher cohesion and principal support, respectively. Within the education literature, "perceived helpfulness of supervisors and co-workers and emphasis on mutual support" (Ostroff, 1993, p.621) significantly influence teachers' perceptions of the social dynamics within the school which have implications for how the school ultimately functions (Ostroff, 1993).

Career Satisfaction

This completes the discussion of the perception variables displayed in Figure 1. It should be clear that teachers' perceptions are strongly associated with their levels of satisfaction – the next construct in the conceptual framework. Teacher satisfaction is an important indicator for schools because satisfied teachers are more likely to work collaboratively, support organizational missions and goals (Ostroff, 1993), value professional development opportunities (Beck & Murphy, 1996), have lower rates of absenteeism (e.g., Wegge, Schmidt, Parkes, & van Dick, 2007), and work in more effective organizations (Ostroff, 1992). These positive correlates of job satisfaction are counterbalanced by those linked to job dissatisfaction – especially for beginning

teachers. Feeling dissatisfied with one's job is the reason why 50 percent of beginning teachers in the first five years leave the field (Ingersoll, 2002; Inman & Marlow, 2004).

Overall satisfaction with one's job, pay, and colleagues are the most common ways teacher satisfaction is operationalized, according to a meta-analysis of articles published in *Education Administration Quarterly* from 1965-1990 (Thompson et al., 1997). While there is some evidence that demographic variables such as age, gender, and school level predict satisfaction (e.g., Thompson et al., 1997), teachers' perceptions of workplace conditions are often stronger predictors (Ma & MacMillan, 1999; Thompson et al., 1997).

It is well established that the relationship between satisfaction and workplace perceptions is reciprocal. James and Tetrick (1986) assert that positive perceptions lead to higher levels of satisfaction and that job satisfaction is reciprocally related back again to those perceptions.

Accountability is cited as a lead indicator of employee dissatisfaction (Mikkelsen, Osgard, & Lovich, 2000). Numerous studies highlight teachers' frustration with having to prioritize test prep activities over those related to deeper learning and exploration (e.g., Luna & Turner, 2001). Compromises to teachers' instructional practices potentially hinder their sense of professional satisfaction (McCabe, 2008).

Determining whether NCLB's enactment correlated with changes in teachers' levels of satisfaction may further inform the field as to why accountability policies continue to fail to meet their intended outcomes.

Motivation

The relationship between satisfaction and job performance is influenced by individuals' levels of motivation. Pinder (1998) defined *work motivation* as "a set of energetic forces that originates both within as well as beyond an individual's being, to initiate work-related behaviour,

and to determine its form, direction, intensity and duration” (p. 11). Sources of motivation vary significantly because individuals’ unique needs, expectations, and attitudes drive their motivation (Kocabas, 2009). Despite these differences, motivation is theoretically (e.g., Locke & Latham, 2004; Meyer, Becker, & Vandenberghe, 2004) and empirically (e.g., Parker et al., 2003) linked with job commitment and satisfaction (Parker et al., 2003). Together commitment and satisfaction are the strongest predictors of work motivation (Parker et al., 2003).

Motivation has several functions. According to Arik (1996), motivation initiates behavior, determines the intensity and level of that particular behavior, and drives the direction and maintenance of that behavior. As a result, low levels of motivation are correlated with poor work performance, poor levels of psychological well-being (e.g., Blais, Lachance, Vallerand, Briere, & Riddle, 1993), and turnover intentions (e.g., Quast & Kleinbeck, 1999).

It is clear that satisfaction and motivation are strong predictors of school performance. Satisfaction and motivation share a unidirectional relationship with performance (Parker et al., 2003; Riketta, 2008). These factors affect performance but there has been little support for a reverse effect (Parker et al., 2003; Riketta, 2008).

It is intuitive that teachers’ perceptions, levels of satisfaction, and motivation are strongly related and that these variables also influence whether teachers choose to remain in the field. Interestingly, “teachers’ satisfaction with their school and the probability that they intend to transfer from their school appear to be far more sensitive to the conditions of work at that school than to the demographic makeup of the student body” (Johnson et al., 2011, p. 23).

In the following section, I provide an overview of what is known about the specific correlates of teachers’ career intentions and how those intentions relate to student performance.

Career Intentions

During the 1999-2000 school year, almost one third of the teaching population (more than one million teachers) moved into, between, or out of schools (Ingersoll, 2004). While turnover prevents stagnation, the constant fluctuation comes with significant costs. One study conducted in Texas calculated teacher turnover costs hundreds of millions of dollars every year (Texas Center for Educational Research, 2000). Other turnover costs are less tangible. Turnover, particularly in urban schools, is detrimental to the school's overall functioning as well as the teachers' and students' experiences. When teachers leave, their colleagues and students experience disruptions to a school's sense of "belonging, continuity, and community" which are critical for long-term school improvement (Ingersoll, 2004, p. 12).

Not only does turnover create shortages, it has implications for school cohesion and ultimately performance (Ingersoll, 2004) particularly in high-poverty schools. Ronfeldt, Lankford, Loeb and Wyckoff's (2011) analysis of over 600,000 elementary students over five years in New York City found that those in 4th and 5th grade who experienced high teacher turnover rates scored lower in math and reading. This effect was evident in schools with more lower performing and black students. While researchers have found that effective teachers are more likely to stay in the field (Aaronson, Barrow and Sander, 2007), these same teachers are also more likely to move away from underperforming schools that are commonly concentrated in poor, urban areas (Goldhaber, Gross and Player, 2007).

Griffith, Hom and Gaertner (2000) conducted a meta-analysis of turnover correlates and antecedents across a wide variety of industries. Some of the strongest predictors included: job satisfaction - intentions to quit, cohesion, autonomy, and length of tenure at their organizations (Griffith et al., 2000).

Turning to teachers specifically, researchers have found that length of tenure is strikingly predictive of turnover. Upwards of 50 percent of all beginning teachers left the field just after five years (e.g., Hafner & Owings, 1991; Murnane, Singer, Willett, Kemple & Olsen, 1991) while teacher retirement accounts for only a small portion of those who leave the profession (Ingersoll, 2004). The type of school in which teachers work is also predictive of whether they will leave. High-poverty public schools and urban schools are more likely to experience a revolving door (Ingersoll, 2004). More often, factors in teachers' personal lives, dissatisfaction, and the desire to obtain a different job are the most common reasons for exiting their position (Ingersoll, 2004).

Since it is often difficult to survey teachers once they have left the profession, many researchers study teachers' career intentions as a proxy for turnover. While one's intention to leave may not materialize in a resignation, it is a key antecedent of such a behavior and it helps explain a teacher's psychological process of withdrawing from a position or the field of education all together (Lachman & Diamant, 1987).

According to a MetLife survey of teachers across the country, teachers "at-risk" of leaving their careers tend to work in high-poverty urban school with high concentrations of minority students (MetLife, 2005). Limited resources for these schools and their districts often prohibit them from offering competitive salaries to retain qualified teachers. Furthermore, the working conditions in these schools are often challenging and provide inadequate supports for teachers (Levin & Quinn 2003).

When turnover is examined in the context of consequential accountability, the results are mixed. For example, 21 percent of teachers who left their jobs in 2000 attributed their decision in some degree to the accountability reforms of the 1990s (Loeb & Cunha, 2007). Similarly,

surveyed teachers identified NCLB as the reason that many of their colleagues left the profession (e.g., Hagge & Waltman, 2008). These results, however, are somewhat contradicted by Boyd, Lankford, Loeb and Wyckoff's (2003) analysis of New York's statewide testing program for fourth grade students. Their findings suggest that the accountability policy led to lower exit rates of fourth grade teachers independent of the schools' demographics.

A national analysis of teacher turnover found similar results. The authors found no relationship between state accountability policies and teachers' desires to leave teaching (Loeb & Estrada, 2005). "Teachers in states with stronger accountability are more likely, in fact, to report that they would pursue teaching again if starting over, and this result is particularly strong for teachers with 5 years of experience or less, those in urban schools, and those in schools with more than 50% Black or Hispanic students or students in poverty" (Loeb & Estrada, 2005, p. 255).

Given all of the antecedents influencing teachers' perceptions, satisfaction, and career intentions, it is no wonder that a silver bullet for improving student performance has yet to be uncovered. As modeled in my conceptual framework, the link between teachers and students is a complex one. The upside is that these variables are all interrelated. This interconnected nature suggests that if positive changes are made to one of the constructs in the model, there may be a spillover effect in which the other variables in the model also improve for the better. This brings me to the final variable in the model. The outcome measure that matters most to the NCLB authors – student achievement.

Student Achievement

As discussed earlier, the yardstick states and the federal government use to measure the success of their accountability policies is student test scores. Although often overlooked as

significant predictors of student achievement, teachers' perceptions of cohesion (Kitmitto, 2006), control (McLaughlin et al., 2000) and constraints (Ostroff, 1992) are early indicators of this valued, quantifiable outcome. In fact, teachers' perceptions of their work climate are stronger predictors of student achievement in math and reading than the student demographics within a given school (Johnson et al., 2011). In addition to teachers' perceptions, teacher turnover is directly correlated with students performance Ronfeldt et al. (2011). My model is an attempt to measure how NCLB influences these early indicators of student achievement. These teacher-specific factors' relationship with student learning experiences and achievement scores cannot be denied.

According to the theories driving this study, accountability policies influence teachers' cognitive processing of the environment in which they work. This cognitive re-evaluation of workplace climate has implications for their subsequent levels of satisfaction, and ultimate career intentions. To date, no study has provided robust evidence as to whether NCLB has significantly influenced teachers' perceptions, satisfaction, and career intentions; however, post-NCLB survey results continue to underscore that many teachers believe NCLB has negatively impacted the teacher workforce. Therefore, a rigorous study answering whether teachers' perceptions, satisfaction, and career intentions have been affected by this latest federal accountability policy is warranted.

As Goodlad once suggested, it is important to "move our attention away from thinking only of outcomes and think of conditions" (Tell, 1999, p. 17). In doing so, we then start to examine whether the conditions influencing the desired outcome are optimal and therefore likely to lead to positive changes we seek.

The following section outlines how I attempted to step back and measure the link between NCLB and critical yet often overlooked teacher-specific factors that influence the conditions under which teachers work and students perform.

CHAPTER III

Method

Despite its theoretical strength and empirical validity, the model I adapted to create the conceptual framework for this study has never been applied to study the effects of policy changes on teachers. Perhaps this dearth of research is due to the fact that most accountability policies are not explicitly designed to directly manipulate teachers' perceptions, satisfaction, and career intentions and therefore the policy effects on these constructs are not commonly considered by researchers. Another reason for the lack of research could be the fact researchers often attempt to control for teachers' individual differences when measuring perceived working conditions (Berry et al., 2008). A third reason may be that a significant portion of policy research is a-theoretical and therefore has only examined combinations of the components within my model without attempting to address the larger theoretical framework.

For these reasons, this study is the first of its kind to simultaneously test how changes in accountability policies simultaneously relate to changes in teachers' perceptions, satisfaction, and career intentions. With this purpose in mind, the following section outlines the data, design, and research questions. While "the factors that come together to generate an individual teacher's experience of pressure are difficult to predict" (Firestone & Mayrowetz, 2000, p. 744), hypotheses for each question follow.

Extant Data Sources

The data measuring teachers' perceptions, satisfaction, and career intentions come from the SASS teacher questionnaires administered six times: 1987, 1990, 1993, 1999, 2003, 2007 (four prior to and two post-NCLB) by the National Center for Education Statistics (NCES) at the U.S. Department of Education.

While the SASS responses are representative at the state- and national-levels, the teachers' responses are not statistically representative at the school-level because only one to 20 teachers per school are asked to complete the survey. The survey is designed, however, to enable researchers to examine trends over time.

A restricted-use SASS data license was required to access the data. With the support of my committee members, I followed the Restricted-Use Data Procedures Manual published by the Institute for Education Sciences (IES) and submitted the application via the U.S. Department of Education's electronic application system. In addition, Dr. Ellen Eckman at Marquette University, added me as a user to her Restricted-Use SASS license which enabled me to access the same data at a location closer to my home.

A second data set, the Common Core of Data (CCD), released annually by NCES was used to supplement the SASS data. Specifically, I linked states' per-pupil expenditure data to my SASS data files for the state-level analyses. These data are publicly available and therefore did not require a license.

Variables

The SASS and CCD variables in Appendix C were selected for this study because they met several criteria. First, they were theoretically and empirically grounded. As detailed earlier, many of the theoretical models describing perceptions include these variables in their frameworks and have been empirically linked to satisfaction and career intentions. The second is that these variables are valid and reliable. Similar items consistently appear in other studies to represent the constructs being measured and the SASS questions have been tested by NCES to determine that their psychometric properties are strong enough to warrant being included in consecutive surveys. The final criterion for inclusion was that each SASS survey item had been

included in at least three out of the four surveys administered prior to NCLB and in both surveys conducted after the law was in place. This criterion enabled the analyses to have enough data points to establish a baseline prior to the law and enough points following the law to explore its relationship with the outcomes of interest.

Given that composite variables increase the quality of a given single-item indicator (e.g., Mayer, 1999), when possible, composites were created for the outcome variables of interest. These were created based on theoretical (e.g., Jones & James, 1979) and empirical work (e.g., Kitmitto, 2006; McLaughlin et al., 2000; Parker et al., 2003). The SASS codes for each of the items are provided in Appendix D.

Designs

I employed two quasi-experimental designs - one at the national-level and the other at the state-level. At the national-level, the “treatment group” consisted of public school teachers while private and Catholic school teachers served as the two “comparison groups.” Although combining the private and Catholic school teachers may seem more intuitive, Dee and Jacob (2009) demonstrated that the revelation of the Catholic Church’s abuse scandal coincided with a large drop in student enrollment at the same time the implementation of NCLB commenced. However, Wong and colleagues’ (2009) analysis suggested there was no significant impact of the scandal on student demographics. Given these mixed findings, I concluded it would be best to keep the Catholic school teachers and private school teachers as separate comparison groups.

The second purpose of this study was to measure the relationship between NCLB and the outcome variables of interest for teachers in states that varied in terms of the strength of the pre-NCLB accountability policies and student proficiency standards. The states were divided using Carnoy and Loeb’s (2002) ratings for the strength of states’ pre-NCLB accountability policies

and Wong et al.'s (2009) codes for states' student proficiency standards. States with weak-moderate local accountability policies prior to NCLB and low student proficiency standards (WEAKACCTLOWPROF) were

- Alaska, Connecticut, Colorado, Delaware, Georgia, Idaho, Iowa, Kansas, Minnesota, Nebraska, New Hampshire, Oklahoma, Oregon, South Dakota, Tennessee, Utah, Virginia, Wisconsin.

States with weak-moderate local accountability policies prior to NCLB and high student proficiency standards (WEAKACCTHIGHPROF) were

- Arizona, Arkansas, Hawaii, Maine, Massachusetts, Michigan, Missouri, Montana, Nevada, North Dakota, Pennsylvania, Rhode Island, Washington, and Wyoming.

States with moderate-strong local accountability policies prior to NCLB and low student proficiency standards (STRONGACCTLOWPROF) were

- Indiana, Mississippi, New Jersey, North Carolina, Texas, and West Virginia.

Finally, states with moderate-strong local accountability policies prior to NCLB and high student proficiency standards (STRONGACCTHIGHPROF) were

- Alabama, California, Florida, Illinois, Kentucky, Louisiana, Maryland, New Mexico, Ohio, and South Carolina.

Like Wong et al. (2009), I exclude New York and Vermont from the state-level analysis because New York uses its own state proficiency rating scale that is not based on the zero to 100 percent proficiency scale that all other states use and Vermont has no state assessment data for the years examined for group assignment.

National-level sample. I restricted the sample to public, Catholic, and private school teachers who identified themselves as elementary teachers working full-time in regular schools

or schools with “special program emphasis” (such as charter or magnet schools), and who taught elementary subjects tested under NCLB (i.e., English, math, and science). These restrictions were similar to those utilized by Phillips and Flashman’s (2007) in their study of the effects of state accountability policies from the 1990s on instructional quality in elementary schools. The rationale for limiting my study to public elementary school teachers is that they are suspected of feeling the greatest pressure from NCLB because they teach multiple tested subjects (Phillips & Flashman, 2007). The private and Catholic school teacher samples followed the same restrictions to make the groups comparable.

Since collecting nationally representative data is expensive and time consuming, the SASS program at the U.S. Department of Education selects a sample of teachers whose responses, when weighted, are representative of teachers across the country on multiple demographic characteristics.

The actual number of total teachers who met the sample criteria for this study (rounded to the nearest 10 to meet IES license requirements) were public ($n = 42,870$), Catholic ($n = 2,870$), and private ($n = 5,250$) for a total of 50,990. When weighted, however, these sample sizes increase dramatically to better approximate the demographic breakdown of public, Catholic, and private teachers across the country. Table 1 provides the weighted sample sizes for each group of teachers by school type and survey year. All tables throughout this document are based on these weighted samples.

Table 1
National-level Sample of Teachers by Year and School Type

| Year | School type | | |
|-------|-------------|----------|---------|
| | Public | Catholic | Private |
| 1987 | 499,843 | 28,046 | 30,031 |
| 1990 | 648,475 | 28,851 | 39,031 |
| 1993 | 623,505 | 28,196 | 42,183 |
| 1999 | 707,147 | 28,309 | 46,144 |
| 2003 | 756,578 | 27,430 | 47,111 |
| 2007 | 683,140 | 24,622 | 51,409 |
| Total | 3,918,688 | 165,454 | 255,909 |

Table 2 displays demographic details for public, Catholic, and private teachers' school locale (i.e., urban, rural, and suburban), school size, average percentage of minority students and average years of experience.

Table 2
National-level Sample of Teachers by School Type and Demographic Characteristics

| Demographic | Public | Catholic | Private |
|--------------------------------------|-----------|----------|---------|
| School locale | | | |
| Urban | 1,100,879 | 69,861 | 94,681 |
| Rural | 1,138,696 | 26,428 | 55,778 |
| Suburban | 1,679,114 | 69,165 | 105,451 |
| Average school size | 568 | 292 | 268 |
| Average percent of minority students | 36 | 26 | 19 |
| Average years of teaching experience | 14 | 14 | 12 |

State-level sample. Only public school teachers who identified themselves as elementary teachers working full-time in regular schools or schools with “special program emphasis” (such as charter or magnet schools) and who taught subjects tested under NCLB (i.e., English, math, and science) were included in the state-level sample because, as mentioned earlier, elementary public school teachers are suspected of feeling the greatest pressure from NCLB because they teach multiple tested subjects (Phillips & Flashman, 2007). The sample sizes are displayed in Table 3.

Table 3
State-level Teacher Sample Size by Year and State Group

| Year | WEAKACCT LOWPROF | WEAKACCT HIGHPROF | STRONGACCT LOWPROF | STRONGACCT HIGHPROF | Total |
|-------|---------------------|----------------------|-----------------------|------------------------|-------|
| 1987 | 1,070 | 772 | 539 | 944 | 3,325 |
| 1990 | 1,235 | 1,061 | 750 | 1,485 | 4,531 |
| 1993 | 1,322 | 1,123 | 923 | 1,684 | 5,052 |
| 1999 | 1,740 | 1,580 | 1,256 | 2,217 | 6,793 |
| 2003 | 1,656 | 1,401 | 1,614 | 2,344 | 7,015 |
| 2007 | 2,049 | 1,718 | 2,197 | 2,492 | 8,456 |
| Total | 9,072 | 7,655 | 7,279 | 11,166 | 35,17 |

Table 4 displays demographic details regarding average school size, percentage of minority students, and per pupil expenditures across the four groups of states.

Table 4
State-level Demographics by State Group

| State group | Per pupil expenditures in dollars (<i>M</i>) | Percentage of minority students (<i>M</i>) | Percent eligible for free or reduced price lunch (<i>M</i>) |
|--------------------|--|--|---|
| WEAKACCTLOWPROF | 6,433 | 24 | .34 |
| WEAKACCTHIGHPROF | 6,674 | 27 | .35 |
| STRONGACCTLOWPROF | 6,544 | 36 | .45 |
| STRONGACCTHIGHPROF | 6,085 | 42 | .47 |

Research Questions and Statistical Models

The broad research questions driving the subsequent national- and state-level regression models are essentially the same. Controlling for teacher and school demographic variables commonly correlated with workplace perceptions, satisfaction, and career intentions,

1. Did any changes in teachers' workplace perceptions, satisfaction, and career intentions correlate with the enactment of NCLB?
2. Did teachers' workplace perceptions, career satisfaction, and career intentions significantly change during the course of NCLB from 2003 to 2007?

In the following sub-sections, these broad research questions are specified in greater detail and are followed by their corresponding hypotheses and regression equations.

National-level research questions. I asked fourteen research questions at the national-level. Did NCLB correlate with changes in public, Catholic, and private elementary school teachers':

- perceptions of role stress;
- perceptions constraints;
- perceptions of control;
- perceptions of teacher cohesion;
- perceptions of principal support;
- satisfaction levels; and
- career intentions?

I also asked whether over the course of NCLB's enactment from 2003 to 2007, did public, Catholic, and private elementary school teachers significantly change their

- perceptions of role stress;
- perceptions constraints;
- perceptions of control;
- perceptions of teacher cohesion;
- perceptions of principal support;
- satisfaction levels; and
- career intentions?

National-level hypotheses. I hypothesized NCLB would be related to a significant increase in public teachers' perceptions of role stress, constraints, and principal support but a significant decrease in their perceptions of control in the classroom, their perceptions of teacher cohesion, and their career satisfaction and intentions to remain in teaching while Catholic and private school teachers' perceptions, satisfaction, and career intentions would not change in relationship to when the law was enacted. I also hypothesized that during the post-NCLB time period from 2003 to 2007, public school teachers would report an increase in role stress, constraints, and a desire to leave their teaching careers and a decrease in their perceptions of teacher cohesion, principal support, and satisfaction while the non-public teachers' perceptions, satisfaction, and career intentions would not change.

State-level research questions. For the state-level analysis, I asked the following research questions: In states with varying levels of student proficiency standards and pre-NCLB accountability policies, did NCLB correlate with changes in teachers’:

- perceptions of role stress;
- perceptions of constraints;
- perceptions of control;
- perceptions of teacher cohesion;
- perceptions of principal support
- satisfaction levels; and
- career intentions?

I also asked if over the course of NCLB’s enactment from 2003 to 2007, whether teachers across these group experienced a significant change in their:

- perceptions of role stress;
- perceptions constraints;
- perceptions of control;
- perceptions of teacher cohesion;
- perceptions of principal support;
- satisfaction levels; and
- career intentions

State-level hypotheses. My hypotheses for the state-level results were that teachers in states with weak pre-NCLB accountability policies and high student proficiency standards would experience the most change in these outcome variables corresponding with NCLB. The rationale

being that this group of teachers is more likely to work in schools that fail to make AYP; therefore, they are more likely to be targets of NCLB's sanctions.

I also hypothesized that NCLB would correlate with changes in the teacher outcomes of interest in states with strong pre-NCLB accountability policies and high student proficiency standards. The rationale being that while these teachers have a long history with accountability and its threats, having additional pressure, paperwork, and requirements on top of their more rigorous state accountability system will cause them to re-evaluate their workplace and significantly change their perceptions, satisfaction, and career intentions. While changes in these teacher outcomes corresponding with the law would be less common for teachers in states with weak pre-NCLB accountability policies and low student proficiency standards because they have set a lower bar for their students achievement and are therefore less likely to be threatened by sanctions for underperformance. However, since NCLB was hypothetically further reaching than their state-level accountability systems, I hypothesized that some of their perceptions would be change with relationship to the law. Finally, I hypothesized teachers in states with strong pre-NCLB accountability policies and low student proficiency standards would experience the fewest changes in the outcome of interest related to the timing of NCLB because they have a history of exposure to accountability and NCLB's "bite" will be less harsh because their bar for student performance is lower.

I also hypothesized that from 2003 to 2007 teachers in all groups of states would perceive an increase in role stress, constraints, and intentions to leave the field and decreases in control, teacher cohesion, principal support, and satisfaction.

National- and state-level analytical model. As described in the conceptual framework, teachers' perceptions of the workplace are correlated with their satisfaction levels and career

intentions. This study's analytical model, applicable to both the national- and state-level analyses, is provided in Figure 2.

Starting at the top of the figure, the model depicts the purpose of the study – measuring the effects of NCLB on teachers' perceptions, satisfaction, and career intentions. Moving from left to right across the figure, the relationship between each of the three categories of outcome variables (i.e., perceptions, satisfaction, and career intentions) is displayed. Throughout the figure, the double-headed arrows signify correlational relationship between the law and the outcome variables and amongst the outcome variables themselves. Therefore, the conclusions drawn from this study will be correlational rather than causal. At the base of the model is a box reserved for the demographic covariates predictive of teacher perceptions, satisfaction, and career intentions.

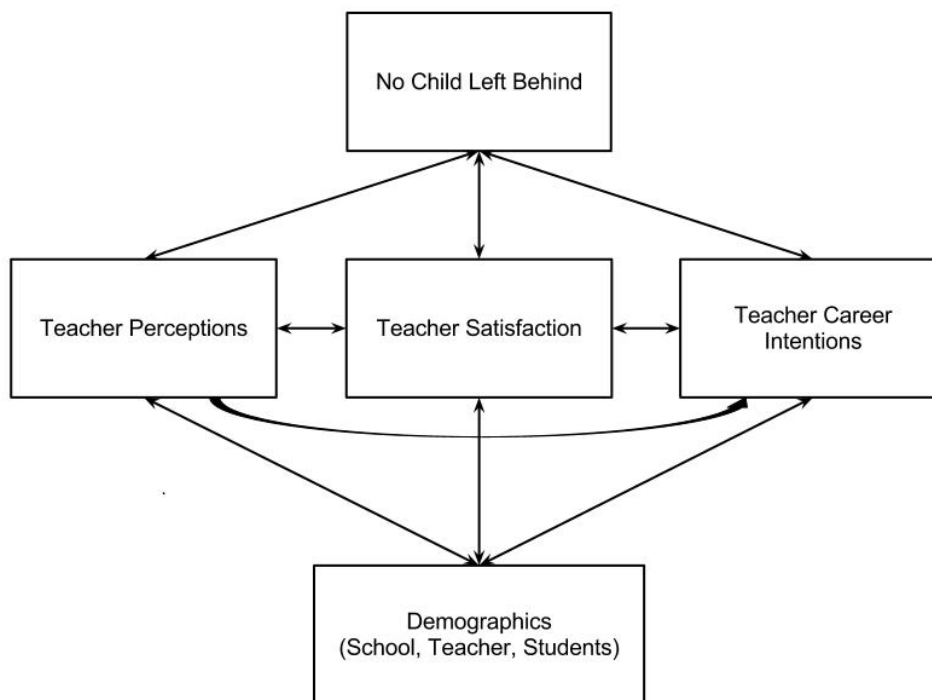


Figure 2. Analytical model for teachers' workplace perceptions, satisfaction, and career intentions.

National- and State-level Linear Regression Models

Given the interrelatedness of each outcome variable, a series of univariate regression models was created. Each regression model's predictor variables included the dependent variables of the regression model preceding it; therefore, the separate regression models are not "independent" because they allow for correlated regression errors across all of the dependent variables.

Since there were eight interrelated outcome variables, the following logic was used to formulate the linear regression equations. I regressed:

- Y_1 on the predictors X_1, \dots, X_p ;
- Y_2 on the predictors X_1, \dots, X_p, Y_1 ;
- Y_3 on the predictors $X_1, \dots, X_p, Y_1, Y_2$; and
- Y_8 on the predictors $X_1, \dots, X_p, Y_1, \dots, Y_7$

where p is the number of demographic covariates in the regression model. Each of the eight models (indexed by $k = 1, \dots, 8$) listed above assume errors that are normally distributed with mean zero and variance σ_k^2 . By specifying the dependent variables as predictors, I accounted for the correlation in the errors, among all of the eight outcome variables.

The national-level regression equations for each of the perception variables as well as the satisfaction and career intention variables are provided in Appendix G. The state-level equations are provided in Appendix H. The guidelines for interpreting the national- and state-level regression models are essentially the same. In each regression model, Y is the outcome variable as measured by SASS for each time the questionnaire was administered for teachers across groups. *Year* signifies the school year the survey was completed. NCLB is a dichotomous variable for which the years 2003 and 2007 ($NCLB = 1$) and ($NCLB = 0$) for all other years prior to 2003. The regression coefficients for the group X NCLB interaction gives the difference in the mean change of the given outcome variable following the enactment of the law. This treatment effect is correlational for all groups.

The regression coefficient for the group X Time After NCLB is the difference in the given outcome variable from 2003 to 2007 for the given group. This particular coefficient lets us

know whether and in which direction the outcome variable changed with relationship to the NCLB period for which I have data.

Dataset construction. Upon receiving the encrypted CD-Rom and the codes to open the SASS files from the U.S. Department of Education, I converted the SASS ASCII files so that they could be read by SPSS. I then created one SPSS data file for each year the SASS survey was administered for public, Catholic, and private school teachers (i.e., 18 SPSS files in total). Each file was built by importing the SASS items using the codes in Appendix D.

Within each of these 18 SPSS files, I renamed the variables so that each contained a suffix indicating the year from which the data originated. For example, the code for the total teaching experience variable for the teachers in the 1987 file was named TOTEXPER_87. This coding system enabled me to decipher which responses were from which particular SASS administration.

To flag only the responses from full-time elementary teachers who taught math, science, or English in grades three through eight in “regular or special emphasis schools”, I created a filter code that highlighted their responses. Within each of the files, I then created the composite variables for role stress-total hours worked, constraints, control, teacher cohesion, and principal support. For each of these, I added the scores from the items making up the composites as defined in Appendix C. Since the variables role stress-routine duties, career satisfaction, and career intentions only consisted of one item, composites for these variables were not created.

I then aggregated the files to create two final national-level data sets. One file contained all of the public, Catholic, and private data for the variables of interest for all six years the SASS was administered. The other contained the aggregated responses from the public, Catholic, and private school teachers’ from 1987, 1993, 1999, 2003 and 2007 because three of the teacher

perception outcome variables (i.e., routine duties, teacher cohesion, and principal support) were excluded from the 1990 SASS administration. The two final national-level files contained only the responses and weighted values from the teachers who met the sample criteria.

For the state-level data files, I created a copy of the national-level public SPSS files that contained only responses from public elementary school teachers who worked full-time in regular schools or schools with “special program emphasis” (such as charter or magnet schools), and who taught elementary subjects tested under NCLB (i.e., English, math, and science). These restrictions were similar to those utilized by Phillips and Flashman’s (2007). I removed the responses from teachers in New York and Vermont because New York uses its own state proficiency rating scale that is not based on the 0 to 100 percent proficiency scale that all other states use and Vermont had no state assessment data for the years examined for group assignment (see Wong et al., 2009). I then coded the states based on the strength of their pre-NCLB accountability policies and student proficiency standards (Carnoy & Loeb, 2002; Wong et al., 2009) as detailed earlier. After aggregating each of the six state-level SASS files and transforming them so that the data were displayed by variable, by year, and by state, I created one file for those variables that were included in all 6 years of the SASS and another that contained public school teachers’ aggregated responses from 1987, 1993, 1999, 2003 and 2007 because three of the teacher perception outcome variables (i.e., routine duties, teacher cohesion, and principal support) were not included in the 1990 SASS administration. In both of the final state-level files, I imputed the state per pupil expenditures by year made publicly available via the Common Core of Data (CCD) website published by the U.S. Department of Education.

Data manipulations. With the exception of total hours worked (a continuous variable), the remaining SASS variables used in this study were measured on an ordinal scale. To ensure

linear regression's normality-of-errors assumption, z-scores were calculated for each of the ordinal outcome variables by subtracting its mean score for the given year from each teacher's score then dividing that value by the variable's standard deviation (SD) for that year. The response options for the career intentions item changed in 2007. Therefore, I recoded the responses prior to creating the z-scores for this outcome variable (see Appendix E). The means and standards deviations used to create the z-scores are provided in Appendix F.

I conducted a test for outliers on all of the independent and dependent variables following the guidelines articulated by Hoaglin and Iglewicz (1987). Two outliers had to be removed from the national-level dataset because one teacher reported working 82 years and the other 192 years. For the state-level data set, several reported having over 100% of their students eligible for free or reduced price lunch. Therefore the decimal places had to be adjusted to reflect the percentage.

Limitations

While this study offers many unique contributions to our understanding of how NCLB impacted teachers, it is not perfect for several reasons. The first is that while the longitudinal nature of the SASS data provide a rich opportunity for examining changes in teachers responses from across the country over time, the fact that there are only two data points following the enactment of NCLB limits my ability to discuss any trends in teachers' post-NCLB perceptions, satisfaction, or career intentions. Similarly, since the SASS survey is not administered annually, having years without data prior to and after NCLB prohibits me from being able to determine whether these teacher variables fluctuated annually.

A third limitation is that the SASS items were not designed for this study so the variables are not perfect proxies for the constructs I attempted to operationalize.

Another limitation is that the outcome variables being measured are not central to NCLB's logic. For example, the results will not be able to speak to changes in teachers' behavior with regard to changes they've made to their curriculum, whether they target their instruction to specific subgroups in an effort to make adequate yearly progress, or how frequent teachers attempt to game the system. While measuring NCLB's influence on each of these outcomes is a worthwhile endeavor, the SASS data as mentioned earlier, were not designed with NCLB in mind. Rather, the items speak to the conditions correlated with increases in student achievement which ultimately may provide more information about how to improve the performance of our education systems.

In terms of the linear regression models used for this study, one limitation is the assumption that the regression errors are normally distributed, including the errors that are uncorrelated with any predictors. Empirical violations of such assumptions can negatively impact the accuracy of the results of a regression analysis, especially in the interpretation of the regression coefficients. These coefficients are further limited by how well the linear regression models fit the data.

Another limitation of the linear regression models is that they only test for the effect of NCLB in terms of how the law interacted with specific groups. When I attempted to include NCLB as a single predictor in the models to test for its main effect on each of the eight outcome variables, it was too highly correlated with the other predictors and therefore was unable to be used in the analyses. Also, my conclusions only permit correlational claims about the law's relationship with the outcomes of interest rather than causal ones.

Finally, there are many unanswered questions as to why NCLB influenced certain groups of teachers differently. Without more qualitative data, I was forced to interpret the patterns of results based on theories and previous research rather than hear from the teachers themselves.

When interpreting the results, it is important to note that most of the national-level models poorly predicted the outcomes of interest. Despite attempts to control for teachers' individual differences and school demographics while also examining the effects of potential moderators, the predictive power of the regression models, for the most part, remained weak at best (see Table 5). The inability to powerfully predict the outcome variables at the national-level may be an indication of the complex nature of individuals' perceptions, satisfaction, and career intentions. Despite being arguably the best national data available for the outcomes of interest, the results also may be an indication of the limitations of using extant SASS data. Independent of why the predictive power of the models is weak, these results should be interpreted with caution because if more robust predictors were available, the results may differ.

On a similar note, there are many statistically significant results; however, when translated into practical terms, they are often negligible and therefore their substantive significance should be interpreted with caution.

Table 5
Regression Models' R² Values by Model Level and Outcome Variable

| Outcome variable | Model level | |
|-------------------|-------------|-------|
| | National | State |
| Role stress | | |
| Total hours | .11 | .73 |
| Routine duties | .09 | .46 |
| Constraints | .13 | .58 |
| Control | .04 | .34 |
| Teacher cohesion | .16 | .66 |
| Principal support | .38 | .81 |
| Satisfaction | .08 | .61 |
| Career intentions | .13 | .54 |

CHAPTER IV.

Results

With the aforementioned caveats in mind, I now present the findings from my national-level analyses to determine the overall relationship shared by NCLB and teachers' perceptions, satisfaction levels, and career intentions. I then follow with the state-level results.

To establish whether the variables used to operationalize the constructs in my conceptual framework reflect what the literature says about their interrelatedness, I measured the strength and direction of their correlations. The results are provided in Table 6 and 7. As expected, the variables were significantly correlated; however, the strength of their relationships was not as strong as I expected. This could be due to limitations of using extant data to define constructs being measured.

As outlined in Appendix C, low values on all of the outcome variables' scales correspond with high levels of the given variables with the exception of teachers' perceptions of control. Higher scores on the control scale signified greater perceptions of control. As shown in Table 6, perceptions of greater control were significantly correlated with high levels of all of the outcome variables except for perceptions of routine duties and constraints.

Interestingly, the relationship between perceptions of principal support and the other outcomes of interest differ in their direction and strength between the national and state-level samples (see Tables 6 and 7). Specifically, teachers in the state-level sample who perceive low levels of principal support were also likely to perceive routine duties and paperwork as less inhibiting and were less likely to perceive student-related constraints as problematic. The opposite was true at the national-level as shown in Table 6.

Table 6

Intercorrelations Between National-level Outcome variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------------|----|-------|-------|-------|-------|-------|-------|-------|
| 1. Role stress-Total hours | -- | -.07* | -.04* | -.03* | -.02* | -.03* | -.05* | -.05* |
| 2. Role stress-Routine duties | | -- | .15* | .13* | -.15* | -.17* | -.20* | -.07* |
| 3. Constraints | | | -- | .12* | -.27* | -.20* | -.11* | -.07* |
| 4. Control | | | | -- | -.18* | -.24* | -.19* | -.08* |
| 5. Teacher cohesion | | | | | -- | .56* | .17* | .11* |
| 6. Principal support | | | | | | -- | .21* | .12* |
| 7. Satisfaction | | | | | | | -- | .33* |
| 8. Career intentions | | | | | | | | -- |

* $p < .01$

Table 7

Intercorrelations Between State-level Outcome Variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------------|----|--------|--------|-------|--------|--------|--------|--------|
| 1. Role stress-Total hours | -- | -.09** | -.33** | .05** | -.29** | -.50** | -.21** | -.38** |
| 2. Role stress-Routine duties | | -- | .26** | .05** | -.01* | .08** | -.37** | -.29** |
| 3. Constraints | | | -- | .17** | -.18** | .08** | -.33** | -.20** |
| 4. Control | | | | -- | -.13** | | -.23** | -.19** |
| 5. Teacher cohesion | | | | | -- | .75** | .22** | .28** |
| 6. Principal support | | | | | | -- | .08** | .27** |
| 7. Satisfaction | | | | | | | -- | .58** |
| 8. Career intentions | | | | | | | | -- |

Note. The correlation between teachers' perceptions of control and teachers' perceptions of principal support was -.002. While the direction of the correlation was expected because higher values on the control scale indicated higher levels of control while the inverse was true for principal support, the correlation was not statistically significant. All the other correlations provided here were significant: * $p < .05$; ** $p < .01$

Before delving into the nuanced details of the analyses, I want to walk through Figure 3 which provides a high-level summary of the changes related to NCLB. The three groups of teachers are listed down the center of the figure. To the left of each group are the changes in their perceptions, satisfaction, and career intentions from pre- to post-NCLB. To the right of the groups are the ways in which the outcomes of interest changed while NCLB was in effect from 2003-2007.

Looking down the left hand side of the figure, it is clear that teachers across the country, independent of school type, experienced significant changes in the outcomes of interest after NCLB's enactment. However, for each of the outcome variables listed on the left hand side of the figure, another variable interacted with NCLB's enactment thereby influencing NCLB's relationship with the outcome of interest. Therefore, the direction of the change in the given outcome variable after NCLB took effect depended on the value of a given moderator.

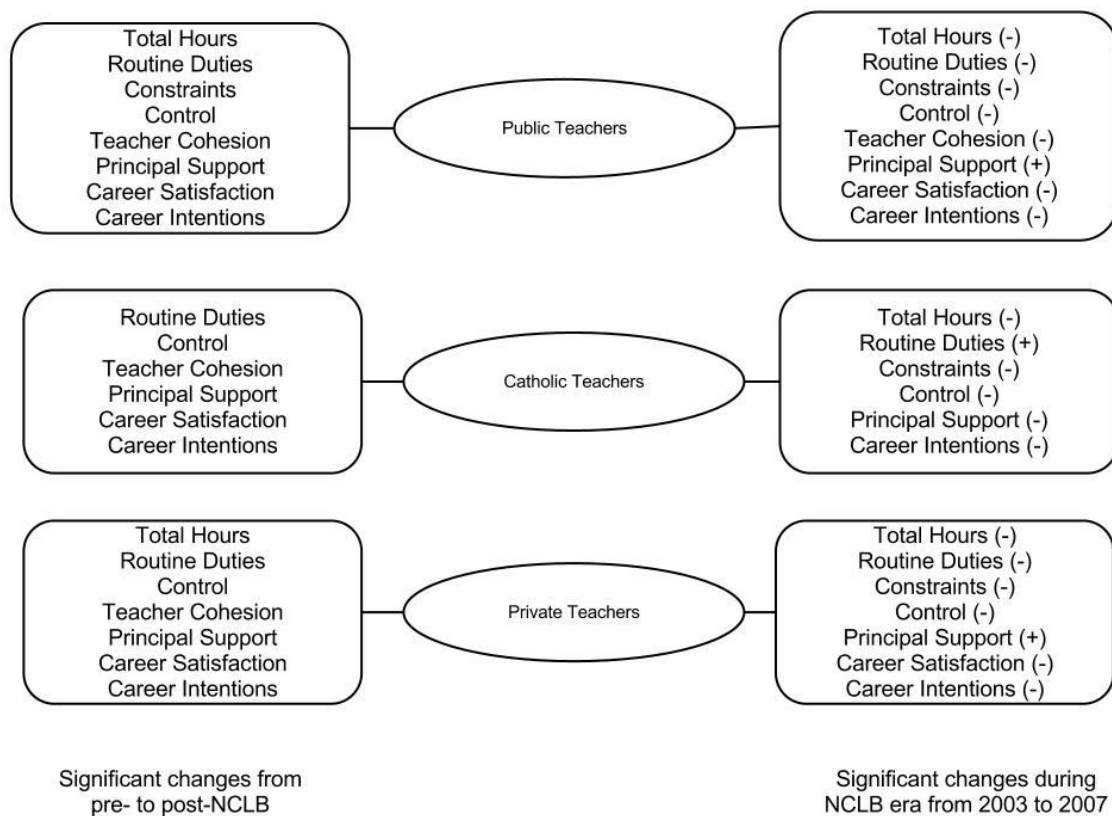


Figure 3. National-level changes in teacher outcome variables across school types and time.

The takeaway from the left side of this figure is that NCLB's treatment effect on all three groups of teachers was moderated by other variables.

Turning now to the right side of the figure, it is clear that all three groups of teachers experienced significant changes in the outcome variables during the post-NCLB enactment period from 2003-2007. I did not test whether the relationship between year and outcome were moderated by other variables and therefore the effect of the Group X Time After NCLB was able

to be noted by the (+) positive or (-) negative symbol. During this time period, the only significant change unique to public school teachers was a decrease in teacher cohesion.

In the following section, I discuss the specific linear regression results for each outcome variable in the order they are laid out in the conceptual framework (see Figure 1). It is important to note that the national-level models were poor predictors of these outcome variables and therefore the quality of the findings are relatively weak. Caution should be taken when interpreting all of the national-level results.

NCLB's National Effects on Teachers' Workplace Perceptions

Role stress. As noted earlier I am interested in the relationship between NCLB and teachers' perceptions of two dimensions of role stress- workload and role conflict. The SASS proxy I used for workload was number of hours worked. The proxy I used for role conflict was teachers' perceptions of routine duties as inhibitors to teaching. In the following paragraphs, I discuss the linear regression results predicting these variables.

Total hours. The linear regression model for total hours worked accounted for 11 percent of the variation in the number of hours teachers reported working (see Table 8).

Table 8

*Significant National-level Regression Results for Role Stress –
Total Hours Worked*

| | <i>Unstandardized Coefficients</i> | |
|---|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | -907.586** | 3.005 |
| Year | .479** | .002 |
| Rural | .286** | .019 |
| Suburban | .461** | .016 |
| Teaching experience | -.086** | .001 |
| Percent minority students | -.012** | .000 |
| Total school enrollment | .000** | .000 |
| NCLB_Public | .690** | .039 |
| NCLB_Private | .895** | .145 |
| NCLB_Public_Rural | -.367** | .032 |
| NCLB_Catholic_Rural | 1.138** | .271 |
| NCLB_Private_Rural | -3.045** | .142 |
| NCLB_Public_Suburban | -.048* | .023 |
| NCLB_Catholic_Suburban | 1.280** | .179 |
| NCLB_Private_Suburban | -2.273** | .101 |
| NCLB_Public_Teaching experience | .023** | .001 |
| NCLB_Private_Teaching experience | .036** | .004 |
| NCLB_Public_Percent minority students | .036** | .004 |
| NCLB_Catholic_Percent minority students | .009** | .003 |
| NCLB_Private_Percent minority students | .012** | .002 |
| NCLB_Catholic_Total school enrollment | .005** | .001 |
| NCLB_Private_Total school enrollment | .003** | .000 |
| Public_Time after NCLB | -.534** | .004 |
| Catholic_Time after NCLB | -.549** | .039 |
| Private_Time after NCLB | -.431** | .023 |

Notes: $R^2 = (.11)$, * $p \leq .01$. ** $p \leq .001$.

Total hours worked was a continuous variable based on the number of hours teachers reported working before, during, and after school. Each of the covariates in the model significantly predicted total hours worked. In general, the number of hours teachers worked increased over time. NCLB was correlated with a significant increase in the number of hours public teachers reported working. Correlated with NCLB's enactment, private school teachers significantly increased the total number of hours they reported working while Catholic teachers reported no significant change. Other variables moderated the NCLB treatment effect on total hours worked. Compared to their urban counterparts, public and private school teachers in rural and suburban areas decreased their hours from pre- to post-NCLB while the number of hours Catholic teachers reported working in rural and suburban areas significantly increased relative to Catholic teachers in urban schools. Public and private teachers with more experience tended to work more hours; however, teaching experience did not significantly moderate the correlation between NCLB and hours worked relationship for Catholic school teachers.

The correlational relationship between NCLB's enactment and the number of hours worked by Catholic and private school teacher was moderated by the percent of minority students enrolled as well as school size. Corresponding with the law, teachers working in larger schools and schools with high percentages of minority students tended to work longer hours; however, NCLB's treatment effect on public school teachers' hours was not moderated by a school's size or percentage of minority students. From 2003 to 2007, teachers from all three groups of schools (i.e., public, Catholic, and private) significantly decreased their work hours.

In short, the only difference in the pattern of results between public and non-public teachers was that after NCLB's enactment, public school teachers significantly increased the number of hours worked, independent of school size and student minority population, while the

comparison groups' uptick in hours correlating with NCLB's enactment generally occurred in larger schools and schools with greater percentages of minority students.

Routine duties. Moving now to NCLB's relationship with a second dimension of role stress – role conflict- the results from this national linear regression model are found in Table 9. The model poorly predicted teachers' perceptions of role conflict as measured by teachers' perceptions of routine duties and paperwork as obstacles to teaching. Only nine percent of the variance in teachers' perceptions of routine duties was explained by the predictors in the linear regression model. Therefore, the quality of the coefficients in Table 9 is weak at best and caution should be taken when inferring from this models results. Also, although many of the coefficients are statistically significant, many are so close to zero that in practical terms they are negligible.

When interpreting the results, it is important to note that lower values on the routine duties scale corresponded with strong agreement that routine duties and paperwork inhibit one's ability to teach and higher numbers on the scale corresponded with a strong disagreement with that statement. Therefore, if a given predictor in Table 9 has a significant positive coefficient then the interpretation that follows is that as the predictor's value increases, teachers are more likely to disagree that routine duties are obstacles.

Table 9

*Significant National-level Regression Results for Role Stress –
Routine Duties*

| | <i>Unstandardized Coefficients</i> | |
|---|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | -1.429*** | .375 |
| Year | .001*** | .000 |
| Rural | .054** | .002 |
| Suburban | .051*** | .002 |
| Teaching experience | -.004*** | .000 |
| Percent minority students | .001*** | .000 |
| Total school enrollment | .000*** | .000 |
| Total hours | -.006*** | .000 |
| Constraints | .100*** | .001 |
| Control | .100*** | .001 |
| Satisfaction | -.158*** | .001 |
| Career intentions | .007*** | .001 |
| NCLB_Public | .134*** | .007 |
| NCLB_Catholic | .784*** | .052 |
| NCLB_Private | 1.410*** | .030 |
| NCLB_Public_Rural | .148*** | .004 |
| NCLB_Private_Rural | -.040** | .015 |
| NCLB_Public_Suburban | .061*** | .003 |
| NCLB_Catholic_Suburban | -.074*** | .019 |
| NCLB_Private_Suburban | -.099*** | .011 |
| NCLB_Public_Teaching experience | -.002*** | .000 |
| NCLB_Catholic_Teaching experience | -.007*** | .001 |
| NCLB_Private_Teaching experience | -.003*** | .000 |
| NCLB_Public_Percent minority students | .001*** | .000 |
| NCLB_Catholic_Percent minority students | .002*** | .000 |
| NCLB_Private_Percent minority students | -.002*** | .000 |
| NCLB_Public_Total school enrollment | .000*** | .000 |
| NCLB_Catholic_Total school enrollment | .000*** | .000 |
| NCLB_Private_Total school enrollment | .000*** | .000 |
| NCLB_Public_Total hours | -.005*** | .000 |
| NCLB_Catholic_Total hours | -.003*** | .001 |
| NCLB_Private_Total hours | -.011*** | .000 |

Notes: $R^2 = (.09)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Table 9 (continued)
*Significant National-level Regression Results for Role Stress –
 Routine Duties*

| Predictors | <i>Unstandardized Coefficients</i> | |
|---------------------------------|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| NCLB_Public_Constraints | .042*** | .001 |
| NCLB_Catholic_Constraints | .056*** | .011 |
| NCLB_Private_Constraints | .068*** | .006 |
| NCLB_Public_Control | -.057*** | .001 |
| NCLB_Catholic_Control | -.047*** | .008 |
| NCLB_Private_Control | -.037*** | .005 |
| NCLB_Public_Satisfaction | -.007*** | .001 |
| NCLB_Catholic_Satisfaction | .035** | .011 |
| NCLB_Public_Career intentions | -.010*** | .001 |
| NCLB_Catholic_Career intentions | -.096*** | .008 |
| NCLB_Private_Career intentions | .011* | .004 |
| Public_Time after NCLB | .004*** | .000 |
| Catholic_Time after NCLB | -.039*** | .004 |
| Private_Time after NCLB | .006** | .002 |

Notes: $R^2 = (.09)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Turning now to the specific results, each of the covariates significantly predicted teachers' perceptions of routine duties. Overall, with each year, teachers' perceptions of routine duties as obstacles to teaching decreased. Those teaching in rural and suburban schools were likely to report decreases in perceptions of routine duties as inhibiting their teaching relative to their urban counterparts. The same was true for teachers in larger schools and those with greater percentages of minority students. Teachers with more years of experience and those who worked more hours were more likely to agree that routine duties and paperwork were obstacles to teaching. Teachers who perceived fewer constraints and greater control were less likely to agree that routine duties were inhibiting. Teachers who were less satisfied and were more likely to

leave teaching were more likely to agree that routine duties and paperwork challenged their ability to teach.

After NCLB's enactment, public, Catholic and private teachers perceived routine duties and paperwork as less of an obstacle to teaching. Corresponding with NCLB's enactment, teachers in Catholic rural schools did not significantly change their perceptions of routine duties compared to their urban Catholic counterparts; however, private rural teachers perceived routine duties as greater obstacles than private urban teachers with relationship to NCLB's enactment.

School locale moderated NCLB's treatment effects for all three groups of teachers. Public rural and suburban teachers perceived routine duties as less of an obstacle to teaching compared to their urban public counterparts. Catholic and private suburban teachers' perceptions of routine duties as obstacles increased compared to their urban counterparts.

Across all three groups of teachers, the NCLB treatment effect on teachers' perceptions of routine duties was also moderated by teaching experience, student demographics, school size, hours worked, perceptions of constraints, perceptions of control, and career intentions. For each group, those teachers with more experience and those working longer hours were more likely to perceive routine duties and paperwork as obstacles to teaching. Those working in larger schools perceived routine duties as less of an obstacle but this change from pre- to post-NCLB, in practical terms, was negligible.

Following NCLB's enactment, private teachers in schools with greater percentages of minority students increased their negative perceptions of problems associated with routine duties and paperwork while the opposite was true for public and Catholic teachers. Across all three groups, from pre- to post-NCLB, teachers perceiving low levels of constraints decreased their

negative perceptions of routine duties while those perceiving high levels of control increased their negative perceptions of routine duties and paperwork.

NCLB's treatment effects on perceptions of routine duties were also moderated by teacher satisfaction for public and Catholic teachers. Less satisfied public teachers perceived routine duties as greater obstacles while more satisfied Catholic teachers perceiving routine duties as less of a challenge.

NCLB's treatment effects were moderated by career intentions for public and Catholic teachers. Public and Catholic teachers who were intending to leave the field increased their negative perceptions of routine duties following the enactment of NCLB while the inverse was true for private school teachers.

From 2003-2007, Catholic school teachers' perceptions of routine duties and paperwork as problematic increased while public and private school teachers' decreased their negative perceptions of routine duties and paperwork.

Constraints. Turning now to the third perception variable in the conceptual framework (see Figure 1), I will now discuss the relationship between NCLB and teachers' perceptions of constraints. The constraints are operationalized as student-related behaviors that reduce teachers' opportunities to work with their students (e.g., student absenteeism, class-cutting, tardiness). According to the results, the predictors only accounted for 13 percent of the variance in constraints. Therefore, these results should be interpreted with caution.

With this caveat in mind, the takeaway from the analysis is that NCLB was related to an increase in public school teachers' perceptions of problems with student tardiness, absenteeism, and class-cutting while the law's enactment did not correlate with any significant change in Catholic and private school teachers' perceptions of constraints. NCLB's treatment effect on

public school teachers' perceptions of constraints, however, was moderated by the number of hours public teachers worked, school locale, years of experience, percent of minority students in school, and total school enrollment, as well as school locale. The results are listed in Table 10.

To assist in the interpretation of the coefficients, it is important to note low scores on the perceptions of constraints scale signify a strong agreement that the constraints were problematic. Therefore, as the values of the predictor variables with negative coefficients increase, so too does the likelihood that teachers reported perceiving constraints as problematic.

Table 10

Significant National-level Regression Results for Perceptions of Constraints

| | <i>Unstandardized Coefficients</i> | |
|---|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | 5.089** | .315 |
| Year | -.002** | .000 |
| Rural | .017** | .002 |
| Suburban | .136** | .002 |
| Teaching experience | .008** | .000 |
| Percent minority students | -.009** | .000 |
| Total school enrollment | .000** | .000 |
| Total hours | -.002** | .000 |
| NCLB_Public | -.097** | .007 |
| NCLB_Public_Rural | .091** | .003 |
| NCLB_Public_Suburban | .096** | .002 |
| NCLB_Catholic_Suburban | -.050* | .018 |
| NCLB_Private_Suburban | -.182** | .010 |
| NCLB_Public_Teaching experience | -.004** | .000 |
| NCLB_Private_Teaching experience | -.003** | .000 |
| NCLB_Public_Percent minority students | .002** | .000 |
| NCLB_Catholic_Percent minority students | .002** | .000 |
| NCLB_Private_Percent minority students | .007** | .000 |
| NCLB_Public_Total school enrollment | .000** | .000 |
| NCLB_Catholic_Total school enrollment | .000** | .000 |
| NCLB_Private_Total school enrollment | .000** | .000 |
| NCLB_Public_Total hours | -.004** | .000 |
| Public_Time after NCLB | .052** | .000 |
| Catholic_Time after NCLB | .022** | .004 |
| Private_Time after NCLB | .026** | .002 |

Notes: $R^2 = (.13)$, * $p \leq .01$. ** $p \leq .001$.

Statistically speaking, all of the covariates significantly predicted teachers' perceptions of constraints. Over the years, teachers' perceptions of constraints increased. Teachers in rural and suburban schools were less likely to perceive student-related issues as problematic compared to their urban counterparts. Teachers with more experience and those working in larger schools were also less likely to perceive student-related constraints as problematic. However, those working in schools with a greater percentage of minority students and those working more hours were more likely to perceive greater constraints.

As mentioned earlier, public teachers' perceptions of constraints increased following the law's enactment; however, there was no correlational NCLB treatment effect on Catholic and private school teachers' perceptions of constraints. NCLB's treatment effect on public teachers' perceptions of constraints, however, was moderated by several other variables (i.e., there were significant interactions between NCLB and school locale, years of experience, percent of minority students, school size and total hours worked). Specifically, public teachers in rural and suburban schools decreased their perceptions of constraints relative to their urban counterparts while those with more teaching experience and those who worked more hours perceived an increase in constraints. Public teachers who worked in larger schools and schools with greater percentages of minority students perceived fewer constraints after NCLB was enacted.

There were significant interactions between NCLB, non-public teachers, and other predictors suggesting the NCLB treatment effect on these teachers was also moderated by other factors. Specifically, Catholic and private school teachers' perceptions of constraints in rural towns did not differ from those in urban areas from pre- to post-NCLB; however, Catholic and private school teachers in suburban areas reported an increase in constraints compared to their

non-public colleagues in urban schools correlating with the law's enactment. From 2003 to 2007, all three groups of teachers perceived fewer student-related constraints.

Putting the mathematical significance aside, practically speaking, these aforementioned shifts in perceptions of constraints were marginal at best and given the poor predictive power of the model, the results are questionable.

Control. The linear regression model for teachers' perceptions of control over issues pertaining to classroom instruction only accounted for four percent of the variance in the outcome variable. Given the limited predictive power of the model, the quality of these coefficients is weak. On a similar note, although mathematically significant, many of the regression coefficients are practically zero. Therefore, the significant results presented in Table 11 should be interpreted with caution.

With this caveat in mind, I'll discuss the patterns of results from this regression model. public school teachers' perceptions of control significantly increased with relationship to the law while the comparison groups' perceptions of control significantly decreased. These treatment effects, however, were moderated by other variables.

When interpreting the coefficients, high scores on the control scale corresponded with perceptions of higher levels of control over classroom instruction. Therefore, as the values for the predictors with significant positive coefficients increase so too do teachers' perceptions of control and vice versa.

Table 11

Significant National-level Regression Results for Perceptions of Control

| | <i>Unstandardized Coefficients</i> | |
|--|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | -18.944*** | .320 |
| Year | .010*** | .000 |
| Rural | .227*** | .002 |
| Suburban | .058*** | .002 |
| Teaching experience | -.009*** | .000 |
| Percent minority students | -.001*** | .000 |
| Total school enrollment | .000*** | .000 |
| Total hours | -.002*** | .000 |
| Constraints | .101*** | .001 |
| NCLB_Public | .206*** | .007 |
| NCLB_Catholic | -.411*** | .052 |
| NCLB_Private | -.356*** | .030 |
| NCLB_Public_Rural | -.079*** | .003 |
| NCLB_Catholic_Rural | -.147*** | .028 |
| NCLB_Private_Rural | -.214*** | .015 |
| NCLB_Public_Suburban | -.112*** | .002 |
| NCLB_Catholic_Suburban | -.039* | .019 |
| NCLB_Private_Suburban | -.113*** | .011 |
| NCLB_Public_Teaching experience | .007*** | .000 |
| NCLB_Catholic_Teaching experience | .017*** | .001 |
| NCLB_Private_Teaching experience | .018*** | .000 |
| NCLB_Public_Percent minority students | -.003*** | .000 |
| NCLB_Private_Percent minority students | .001*** | .000 |
| NCLB_Public_Total school enrollment | .000*** | .000 |
| NCLB_Private_Total school enrollment | .000*** | .000 |
| NCLB_Public_Total hours | -.003*** | .000 |
| NCLB_Catholic_Total hours | .004*** | .001 |
| NCLB_Private_Total hours | .002*** | .000 |
| NCLB_Public_Constraints | .010*** | .001 |
| NCLB_Catholic_Constraints | -.069*** | .011 |
| NCLB_Private_Constraints | -.051*** | .006 |
| Public_Time after NCLB | -.026*** | .000 |
| Catholic_Time after NCLB | -.021*** | .004 |
| Private_Time after NCLB | -.014*** | .002 |

Notes: $R^2 = (.04)$, * $p \leq .05$. *** $p \leq .001$.

All of the covariates significantly predicted teachers' perceptions of control. Over the six years of the survey, teachers, in general, perceived higher levels of control in their classroom. Teachers with more experience were less likely to perceive being in control as were teachers in schools with higher percentage of minority students. Those in larger schools and those who perceived fewer student-related constraints were more likely to perceive greater control over their classroom instruction while those who worked more hours were less likely to perceive being in control.

Public school teachers' perceptions of control over their classroom practices increased while Catholic and private school teachers' perceptions of control decreased in relationship to the law's enactment. However, other variables, as mentioned earlier moderated NCLB's treatment effect.

Across all three groups, rural and suburban teachers' perceptions of control significantly decreased relative to their urban counterparts. Public, Catholic, and private teachers who had more years of experience increased their perceptions of control following the law. School size moderated the relationship between NCLB and public and private teachers' perceptions of control. Those in larger schools tended to perceive greater levels of control; however, when rounded to the nearest hundredth, this effect was zero.

The percentage of minority students moderated the law's impact on public school teachers' perceptions of control. The greater the percentage, the less control public teachers perceived. The correlation between NCLB and the change in private school teachers' perceptions of control was moderated by the percentage of minority students in the school, too. The more minority students, the more likely teachers perceived an increase in control. The student body's

minority make-up did not moderate NCLB's treatment effect on Catholic teacher's perceptions of control.

The number of hours teachers worked influenced NCLB's treatment effect on all three groups' perceptions of control; however, public school teachers working more hours perceived less control while those in the comparison groups perceived greater control.

Teachers' perceptions of constraints also moderated NCLB's impact on perceptions of control. Specifically, public school teachers who perceived fewer constraints perceived greater control while those in the comparison groups perceived less control. Again, these changes translate into small practical differences.

Despite public school teachers' initial surge in perceived control, the "treatment" group followed the same pattern as the comparison groups by reporting a significant decline in perceived control during the post-NCLB time period.

In summary, after NCLB was enacted, public school teachers' perceptions of control increased. The NCLB treatment effect, however, was moderated by school locale, teaching experience, the percentage of minority students in teachers' schools, school size, the number of hours teachers worked and the degree to which they perceived student-related constraints as problematic. The increase in perceptions of control following the law's enactment, albeit extremely small in practical terms, was short-lived as public school teachers experienced a significant decrease, although also small, in perceptions of control from 2003-2007.

Teacher cohesion. Now to the regression results for the second to last perception variable in the conceptual framework – teacher cohesion (see Table 12).

Table 12

Significant National-level Regression Results for Perceptions of Teacher Cohesion

| | <i>Unstandardized Coefficients</i> | |
|--|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | -34.816*** | .379 |
| Year | .018*** | .000 |
| Rural | .071*** | .002 |
| Suburban | -.112*** | .002 |
| Teaching experience | -.012*** | .000 |
| Percent minority students | .001*** | .000 |
| Total school enrollment | .000*** | .000 |
| Total hours | -.003*** | .000 |
| Routine duties | -.092*** | .001 |
| Constraints | -.160*** | .001 |
| Control | -.149*** | .001 |
| Satisfaction | .133*** | .001 |
| Career intentions | .020*** | .001 |
| NCLB_Public | -.470*** | .007 |
| NCLB_Catholic | -.381*** | .053 |
| NCLB_Private | -.110*** | .031 |
| NCLB_Public_Rural | -.070*** | .004 |
| NCLB_Private_Rural | -.422*** | .015 |
| NCLB_Public_Suburban | .092*** | .003 |
| NCLB_Catholic_Suburban | .056** | .019 |
| NCLB_Private_Suburban | .056*** | .011 |
| NCLB_Public_Teaching experience | .003*** | .000 |
| NCLB_Catholic_Teaching experience | .012*** | .001 |
| NCLB_Private_Teaching experience | .011*** | .000 |
| NCLB_Public_Percent minority students | -.001*** | .000 |
| NCLB_Private_Percent minority students | -.003*** | .000 |
| NCLB_Public_Total school enrollment | .000*** | .000 |
| NCLB_Catholic_Total school enrollment | .000*** | .000 |
| NCLB_Private_Total school enrollment | .000*** | .000 |
| NCLB_Public_Total hours | .006*** | .000 |
| NCLB_Catholic_Total hours | .002* | .001 |
| NCLB_Private_Total hours | -.007*** | .000 |
| NCLB_Public_Routine duties | .035*** | .001 |
| NCLB_Catholic_Routine duties | -.099*** | .009 |
| NCLB_Private_Routine duties | .035*** | .001 |

Notes: $R^2 = (.16)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Table 12 (continued)

Significant National-level Regression Results for Perceptions of Teacher Cohesion

| | <i>Unstandardized Coefficients</i> | |
|---------------------------------|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| NCLB_Public_Constraints | -.108*** | .001 |
| NCLB_Catholic_Constraints | .028* | .011 |
| NCLB_Private_Constraints | .016* | .006 |
| NCLB_Public_Control | .026*** | .001 |
| NCLB_Catholic_Control | -.052*** | .008 |
| NCLB_Private_Control | .148*** | .005 |
| NCLB_Public_Satisfaction | -.072*** | .001 |
| NCLB_Catholic_Satisfaction | -.061*** | .011 |
| NCLB_Private_Satisfaction | -.038*** | .006 |
| NCLB_Public_Career intentions | .057*** | .001 |
| NCLB_Catholic_Career intentions | -.055*** | .008 |
| NCLB_Private_Career intentions | .047*** | .004 |
| Public_Time after NCLB | .002*** | .000 |

Notes: $R^2 = (.16)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

When interpreting the results in Table 12, it is important to note that high scores on the teacher cohesion scale correspond to low levels of perceived teacher cohesion. Therefore as the values of predictors with significant positive coefficients increase, teachers' perceptions of cohesion decrease and vice versa.

The linear regression model for teacher cohesion explained 16 percent of the variation in teacher cohesion. Therefore, these results should be interpreted carefully. The takeaways from this particular analysis are that teachers in all three groups significantly increased their perceptions of teacher cohesion after the enactment of NCLB. The NCLB treatment effects were moderated by several other variables in the model. From 2003-2007, only public school teachers' perceptions of teacher cohesion significantly changed. Specifically, public school teachers during this time period decreased their perceptions of teacher cohesion.

Walking through the results Table 12, all of the covariates significantly predicted teachers' perceptions of cohesion. From 1987-2007, teachers' perceptions of teacher cohesion overall decreased. Compared to their urban counterparts, teachers in rural schools were less likely to perceive high levels of cohesion while teachers in the suburbs were more likely to perceive higher levels of cohesion. Teachers with more experience perceived higher levels of teacher cohesion. Those working in schools with higher percentages of student minority students as well as those in larger schools were more likely to perceive lower levels of teacher cohesion.

Those who reported working longer hours, perceived routine duties as obstacles, perceived higher levels of constraints, were less satisfied, and were more likely to want to leave the teaching profession, were less likely to perceive high levels of teacher cohesion while those who perceived high levels of control were more likely to perceive high levels of teacher cohesion.

As mentioned earlier, public, Catholic, and private school teachers' perceptions of teacher cohesion increased from pre- to post-NCLB. However, other factors moderated the NCLB treatment effect. Beginning with school locale, suburban public school teachers' perceptions of teacher cohesion decreased while rural public teachers' perceptions of teacher cohesion increased compared to their urban counterparts. Private rural school teachers increased their perceptions of control relative to their urban counterparts while suburban private and Catholic teachers' perceptions of cohesion decreased relative to their urban peers.

Teacher experience and the percentage of minority students significantly moderated the NCLB-teacher cohesion relationship. Across all three groups, teachers with more experience perceived decreases in teacher cohesion. Public and private teachers in schools with higher percentages of minority students perceived higher levels of teacher cohesion after 2002 while

Catholic school teachers in schools with higher percentages of minority students did not change their perceptions of teacher cohesion.

The number of hours worked also moderated the NCLB treatment effect. Teachers working more hours in public and Catholic schools perceived lower levels of teacher cohesion while private school teachers working more hours were more likely to perceive higher levels of cohesion with their fellow teachers.

The NCLB treatment effect on teachers' perceptions of cohesion was also moderated by teachers' perceptions of routine duties and paperwork. Public and private teachers who perceived routine duties as obstacles perceived higher levels of teacher cohesion while Catholic teachers who perceived routine duties as obstacles to teaching perceived lower levels of teacher cohesion.

Perceptions of constraints also moderated the relationship NCLB's treatment effects on teacher cohesion across all three groups. Interestingly, public school teachers who perceived few constraints perceived higher levels of teacher cohesion; however, Catholic and private school teachers who perceived few constraints perceived lower levels of teacher cohesion.

Across all three groups of teachers, perceptions of control, career intentions, satisfaction, and perceptions of routine duties all moderated the NCLB treatment effect on teachers' perceptions of teacher cohesion. Specifically, those in public and private schools who perceived themselves as having high levels of control as well as those who were less intent on remaining in their career perceived lower levels of teacher cohesion following NCLB's roll-out. On the other hand, Catholic school teachers who perceived high levels of control as well as those who were less interested in remaining in the teaching profession perceived higher levels of cohesion with their colleagues. Less satisfied teachers across all three groups perceived an increase in teacher cohesion.

In brief, the only unique difference between the factors moderating the NCLB treatment effect on public teachers' perceptions of teacher cohesion relative to both comparison groups is the law's interaction with teachers' perceptions of constraints. Public school teachers who perceived more constraints also perceived higher levels of cohesion with their colleagues. The inverse was true for the teachers in the comparison groups. Practically speaking, the shift in their perceptions of teacher cohesion following the enactment of NCLB, however, appear to be negligible.

From 2003-2007, public school teachers' perceptions of teacher cohesion significantly decreased while there was no statistically significant change for the comparison groups. This decrease, however, in practical terms was also insignificant.

Principal support. Now to the final perception variable in the national-level analysis – principal support. Accounting for 38 percent of the variance in principal support, this model had the strongest predictive power relative to all of the other national-level models. This is most likely due to the fact that it contained the most predictor variables. The results are provided in Table 13. It is important to note that high scores on the principal support scale correspond to low levels of perceived support. Therefore as the values of predictors with significant positive coefficients increase, teachers' perceptions of principal support decrease and vice versa. Given that 62 percent of the variance in teachers' perceptions of principal support is unexplained by this model, it is important to interpret these results with caution.

Table 13

Significant National-level Regression Results for Perceptions of Principal Support

| | <i>Unstandardized Coefficients</i> | |
|-----------------------------------|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | -2.412*** | .334 |
| Year | .001*** | .000 |
| Rural | .021*** | .002 |
| Suburban | -.041*** | .002 |
| Teaching experience | .004*** | .000 |
| Percent minority students | -.001*** | .000 |
| Total school enrollment | .000*** | .000 |
| Total hours | .000** | .000 |
| Routine duties | -.075*** | .001 |
| Constraints | -.071*** | .001 |
| Control | -.151*** | .001 |
| Teacher cohesion | .515*** | .001 |
| Satisfaction | .051*** | .001 |
| Career intentions | .036*** | .001 |
| NCLB_Public | -.154*** | .006 |
| NCLB_Catholic | -.377*** | .047 |
| NCLB_Private | -.203*** | .027 |
| NCLB_Public_Rural | .082*** | .003 |
| NCLB_Catholic_Rural | .101*** | .025 |
| NCLB_Private_Rural | -.045*** | .013 |
| NCLB_Public_Suburban | -.006** | .002 |
| NCLB_Catholic_Suburban | .092*** | .017 |
| NCLB_Private_Suburban | .072*** | .009 |
| NCLB_Public_Teaching experience | .003*** | .000 |
| NCLB_Catholic_Teaching experience | .002*** | .001 |
| NCLB_Private_Teaching experience | .003*** | .000 |

Notes: $R^2 = (.38)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Table 13 (continued)

Significant National-level Regression Results for Perceptions of Principal Support

| | <i>Unstandardized Coefficients</i> | |
|---|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| NCLB_Public_Percent minority students | .000*** | .000 |
| NCLB_Catholic_Percent minority students | .001* | .000 |
| NCLB_Private_Percent minority students | .003*** | .000 |
| NCLB_Public_Total school enrollment | .000*** | .000 |
| NCLB_Catholic_Total school enrollment | .000*** | .000 |
| NCLB_Public_Total hours | -.002*** | .000 |
| NCLB_Catholic_Total hours | .003*** | .001 |
| NCLB_Public_Routine duties | -.004*** | .000 |
| NCLB_Catholic_Routine duties | -.030*** | .000 |
| NCLB_Private_Routine duties | -.050*** | .000 |
| NCLB_Public_Constraints | .034*** | .001 |
| NCLB_Catholic_Constraints | .043*** | .010 |
| NCLB_Private_Constraints | .093*** | .006 |
| NCLB_Public_Control | .005*** | .001 |
| NCLB_Catholic_Control | -.045*** | .008 |
| NCLB_Private_Control | .057*** | .004 |
| NCLB_Public_Teacher cohesion | .013*** | .001 |
| NCLB_Catholic_Teacher cohesion | .074*** | .008 |
| NCLB_Private_Teacher cohesion | .050*** | .005 |
| NCLB_Public_Satisfaction | .022*** | .001 |
| NCLB_Private_Satisfaction | -.053*** | .006 |
| NCLB_Public_Career intentions | -.051*** | .001 |
| NCLB_Private_Career intentions | -.011** | .004 |
| Public_Time after NCLB | -.023*** | .000 |
| Catholic_Time after NCLB | .029*** | .004 |
| Private_Time after NCLB | -.025*** | .002 |

Notes: $R^2 = (.38)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

In brief, the results of this analysis suggest that following the enactment of NCLB, all three groups of teachers significantly increased their perceptions of principal support. NCLB's treatment effects across all three groups, however, were moderated by other variables as described in the section that follows.

All of the covariates in the model significantly predicted teachers' perceptions of principal support. With each year, teachers perceived lower levels of principal support. Compared to teachers in urban schools, those in rural schools perceived less principal support while teachers in suburban schools perceived more support. Teachers with more years of experience and those working in larger schools perceived less support while those in schools with higher percentages of minority students perceived greater support.

Teachers who perceived routine duties to be inhibiting and constraints as problematic were less likely to perceive their principals as supportive. Those who perceived high levels of control, teacher cohesion, were satisfied with their career choice and intended to stay in teaching were more likely to perceive higher levels of principal support.

Across all three groups, NCLB had a significant treatment effect on teachers' perceptions of principal support. NCLB's enactment correlated with public, Catholic, and private school teachers' perceiving an increase in principal support. These treatment effects, however, were moderated by other variables. One of the moderators was school locale. Following the law's enactment, public and Catholic teachers in rural school schools perceived lower levels of support from their principal compared to their urban counterparts while private school teachers in rural areas perceived higher levels of support compared to private school teachers in urban schools. Interestingly, under NCLB public suburban teachers significantly increased their perceptions of principal support relative to their urban peers while Catholic and private suburban teachers

significantly decreased their perceptions of principal support compared to their urban counterparts.

Across all three groups, teaching experience and percentage of minority students in the school moderated NCLB's treatment effects. The more experience and the greater the percentage of minority students, the less support perceived by public and non-public teachers.

The number of hours worked moderated the NCLB treatment effect for public and Catholic teachers but not private school teachers. Public teachers working more hours perceived more support from their principals while the inverse was true for Catholic teachers.

Perceptions of routine duties, constraints, control, and teacher cohesion moderated the NCLB treatment effect for all three groups of teachers. Across all three groups, those who perceived an decrease in routine duties, constraints, and teacher cohesion were also more likely to perceive a decrease in principal support. As for the moderating effects of control on the NCLB treatment, public and private teachers who perceived more control perceived less support from their principals while the inverse was true for Catholic teachers.

From 2003 to 2007, public and private teachers perceived an increase in principal support while Catholic teachers perceived a decrease. These changes, however, in practical terms are negligible.

This concludes the findings regarding NCLB's impact on teachers' perceptions. I now will discuss the law's impact on the next variable in the conceptual framework – teachers' career satisfaction.

NCLB's National Effect on Teachers' Career Satisfaction

Teacher career satisfaction was measured by a single survey item that asked whether teachers would choose teaching as their career, if they had an opportunity to go back to college

again. Low scores on the teacher career satisfaction scale signify teachers would choose to go into teaching again, if given the chance. When interpreting the results in Table 14, as predictors in the model with significant positive coefficients increase, teacher career satisfaction decreases and vice versa.

The regression model predicting teachers' career satisfaction only accounted for approximately eight percent of the outcome's variation therefore the quality of these coefficients is weak and the results should be interpreted with caution.

Table 14

Significant National-level Regression Results for Career Satisfaction

| | <i>Unstandardized Coefficients</i> | |
|---|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | 14.653** | .330 |
| Year | -.007** | .000 |
| Rural | .101** | .002 |
| Suburban | .020** | .002 |
| Teaching experience | .013** | .000 |
| Percent minority students | .002** | .000 |
| Total school enrollment | .000** | .000 |
| Total hours | -.003** | .000 |
| Constraints | -.067** | .001 |
| Control | -.215** | .001 |
| NCLB_Public | .166** | .007 |
| NCLB_Catholic | -.144** | .054 |
| NCLB_Private | .390** | .031 |
| NCLB_Public_Rural | -.204** | .003 |
| NCLB_Private_Rural | -.061** | .015 |
| NCLB_Public_Suburban | -.195** | .002 |
| NCLB_Catholic_Suburban | -.107** | .019 |
| NCLB_Private_Suburban | -.115** | .011 |
| NCLB_Public_Teaching experience | .001** | .000 |
| NCLB_Catholic_Teaching experience | -.013** | .001 |
| NCLB_Private_Teaching experience | -.010* | .000 |
| NCLB_Public_Percent minority students | -.003** | .000 |
| NCLB_Catholic_Percent minority students | -.001** | .000 |
| NCLB_Private_Percent minority students | .001** | .000 |
| NCLB_Public_Total school enrollment | .000** | .000 |
| NCLB_Catholic_Total school enrollment | .000** | .000 |
| NCLB_Private_Total school enrollment | .000** | .000 |
| NCLB_Public_Total hours | -.001** | .000 |
| NCLB_Catholic_Total hours | .008** | .001 |
| NCLB_Private_Total hours | -.008** | .000 |
| NCLB_Public_Constraints | -.076** | .001 |
| NCLB_Catholic_Constraints | -.043** | .011 |
| NCLB_Private_Constraints | -.106** | .006 |
| NCLB_Public_Control | .065** | .001 |
| NCLB_Catholic_Control | .131** | .009 |
| NCLB_Private_Control | .168** | .005 |
| Public_Time after NCLB | .029** | .000 |
| Private_Time after NCLB | .028** | .002 |

Notes: $R^2 = (.08)$, * $p \leq .01$. ** $p \leq .001$.

All of the demographic covariates in the model significantly predicted teacher career satisfaction. Over the years, teachers were more satisfied with their career choice. Somewhat surprisingly, teachers in rural and suburban were less satisfied relative to their urban counterparts. Teachers with more experience, those working in schools with higher percentage of minority students and those in larger schools were less likely to be satisfied. Practically speaking, however, all of these differences were negligible. Those who worked longer hours, perceived fewer constraints, and greater control were more satisfied with their career choice.

NCLB correlated with a decrease in public and private school teachers' career satisfaction and an increase in Catholic school teachers' career satisfaction. School locale moderated these correlational NCLB treatment effects. Public and private school teachers in rural and suburban schools were more likely to be satisfied with their career choice compared to their counterparts in urban schools. While there was no significant difference between rural and urban Catholic school teachers' change in satisfaction levels during this same time period, suburban Catholic teachers reported a significant increase in career choice satisfaction relative to their urban Catholic colleagues.

Across all three groups, teacher experience moderated the NCLB treatment effect on career satisfaction. The direction of that relationship varied for the treatment versus the comparison groups. After NCLB's enactment, public school teachers with more years of experience were less likely to be satisfied with their career choice while those with more experience in the comparison groups were more likely to be satisfied.

After 2002, public and Catholic school teachers who taught in schools with higher percentages of minority students were more likely to report greater satisfaction with their career choice while private school teachers, however, were less satisfied.

Hours worked, perceptions of student constraints, and perceptions of routine duties moderated the NCLB treatment effect on all three groups of teachers' satisfaction levels. Public and private school teachers who worked more hours were more satisfied while Catholic school teachers who worked more were less satisfied. Across all three groups, those who perceived fewer constraints were more satisfied with their career choice while, counterintuitively, those who perceived greater levels of control were less likely to be satisfied with their career choice.

In the years following NCLB's introduction from 2003-2007, public and private school teachers were less satisfied with their career choice while satisfaction levels for Catholic school teachers did change.

To summarize, public school teachers' years of experience moderated the law's impact on teachers' career satisfaction. The satisfaction levels of public school teachers with more experience decreased following the law's enactment while the inverse was true for those in the comparison groups.

NCLB's National Effect on Teachers' Career Intentions

Now to the final variable in the conceptual framework – teachers' career intentions. This variable was measured using a single SASS item that asked how long teachers intended to stay in their career. Low scores indicated an intention to remain in the field while higher scores indicated less of a commitment to stay.

The linear regression model accounted for only 13 percent of the variance in teachers' career intentions. Therefore, the results in Table 15 should be interpreted with caution.

Table 15
Significant National-level Regression Results for Career Intentions

| | <i>Unstandardized Coefficients</i> | |
|---|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | 9.367** | .300 |
| Year | -.004** | .000 |
| Rural | .046** | .002 |
| Suburban | -.018** | .002 |
| Teaching experience | -.010** | .000 |
| Percent minority students | .000** | .000 |
| Total school enrollment | .000** | .000 |
| Total hours | -.003** | .000 |
| Constraints | -.043** | .001 |
| Control | -.028** | .001 |
| Satisfaction | .285** | .001 |
| NCLB_Public | -.554** | .006 |
| NCLB_Catholic | -.408** | .049 |
| NCLB_Private | .091** | .028 |
| NCLB_Public_Rural | .091** | .003 |
| NCLB_Catholic_Rural | -.403** | .026 |
| NCLB_Private_Rural | -.167** | .014 |
| NCLB_Public_Suburban | .104** | .002 |
| NCLB_Catholic_Suburban | -.085** | .018 |
| NCLB_Private_Suburban | -.207** | .010 |
| NCLB_Public_Teaching experience | .005** | .000 |
| NCLB_Catholic_Teaching experience | .002** | .001 |
| NCLB_Private_Teaching experience | -.009** | .000 |
| NCLB_Public_Percent minority students | .000** | .000 |
| NCLB_Catholic_Percent minority students | -.001** | .000 |
| NCLB_Private_Percent minority students | -.004** | .000 |
| NCLB_Public_Total school enrollment | .000** | .000 |
| NCLB_Catholic_Total school enrollment | .000** | .000 |
| NCLB_Public_Total hours | .004** | .000 |
| NCLB_Catholic_Total hours | .011** | .001 |
| NCLB_Private_Total hours | .005** | .000 |
| NCLB_Public_Constraints | -.047** | .001 |
| NCLB_Catholic_Constraints | .141** | .010 |
| NCLB_Private_Constraints | .113** | .006 |

Notes: $R^2 = (.13)$, ** $p \leq .01$. ** $p \leq .001$.

Table 15 (continued)
Significant National-level Regression Results for Career Intentions

| | <i>Unstandardized Coefficients</i> | |
|----------------------------|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| NCLB_Public_Control | .033** | .001 |
| NCLB_Catholic_Control | -.021* | .008 |
| NCLB_Private_Control | -.050** | .004 |
| NCLB_Public_Satisfaction | .043** | .001 |
| NCLB_Catholic_Satisfaction | .244** | .009 |
| NCLB_Private_Satisfaction | .185** | .006 |
| Public_Time after NCLB | .020** | .000 |
| Catholic_Time after NCLB | .020** | .004 |
| Private_Time after NCLB | .022** | .002 |

Notes: $R^2 = (.13)$, * $p \leq .01$. ** $p \leq .001$.

The brief takeaway from the results in Table 15 is that NCLB correlated with an increase in public and Catholic teachers' intentions to remain in the field. while private school teachers' increased their intentions to leave. These NCLB treatment effects, however, were moderated by other variables. The specific interactions are discussed in the following section. I first describe the relationship between the covariates in the model and then discuss the significant interactions.

Each demographic covariate significantly predicted teachers' career intentions. Over time, teachers' intentions to remain in the field increased marginally. Compared to their urban counterparts, teachers in rural schools were less likely to want to remain in teaching while the inverse was true for teachers in suburban. Again this differences were negligible. Teachers with more experience were more likely to intend to stay in their careers while teachers in large schools or those schools with high percentages of minority students were less intent on staying in the field. These differences in practical terms, however, were essentially zero.

The perception variables as well as teacher career satisfaction significantly predicted teachers' career intentions. Teachers who worked more hours were more likely to want to remain

in their career so, too, were teachers who perceived fewer constraints and greater levels of control. Teachers who were less satisfied with their career were less intent on staying in the teaching field.

As mentioned earlier, teachers across all three groups significantly changed their intentions from pre- to post-NCLB. School locale moderated the NCLB treatment effects for all three groups. Rural and suburban public teachers were less likely to want to remain in teaching compared to their urban peers while the inverse was true for the comparison groups. Public and Catholic teachers with more teaching experience decreased their desire to remain in the teaching profession while those in private schools increased their intentions to remain in the field. These differences in practical terms were insignificant.

The percentage of minority students in teachers' schools also moderated NCLB's treatment effect on teachers' career intentions. Public teachers with high percentages of minority students were less intent on staying in their career while Catholic and private school teachers working in schools with high percentages of minority students increased their intent to stay in the field. Again these differences in practical terms were negligible.

Hours worked also moderated the NCLB treatment effects. Teachers in all three groups who worked more hours were more likely to want to leave the field. Constraints also moderated NCLB treatment effect on teachers' career intentions. Public teachers who perceived fewer constraints were more likely to want to remain in teaching while the opposite was true for Catholic and private school teachers. Another finding that is contrary to what may be expected is public school teachers who perceived higher levels of control were less intent on staying in the field. The inverse was true for their Catholic and private peers. Finally, across all three groups,

those who were more satisfied with their career choice were more likely to intend to remain in the field following NCLB's enactment.

Finally, from 2003 to 2007, all three groups of teachers decreased their intentions to want to remain in the field. Again, these changes were minute in practical terms.

To summarize, interesting differences between the variables that moderated NCLB's treatment effects on teachers' career intentions for public versus non-public teachers were school locale, percentage of minority students, perceptions of constraints and control. Public rural and suburban teachers' significantly decreased their intentions to remain in their careers relative to their urban colleagues while school locale did not moderate the comparison groups' changes in teachers' career intentions following 2002. Also, public teachers in schools with greater percentages of minority students were less intent on staying in the field after the law's enactment while the opposite was true for the comparison groups. Finally, public teachers who perceived fewer constraints and less control were more likely to want to remain in teaching after 2002 while the inverse was true for the comparison groups. Again, the practical differences were small.

Summary of NCLB's National Effects

While significant changes were seen in the outcomes of interest across all three groups of teachers from pre- to post-NCLB and then again from 2003 to 2007, the models used to predict the outcomes did not fit the data well and therefore the quality of the regression coefficients is low. On a similar note, the majority of the significant coefficients were so small that they were practically insignificant. Therefore, these results should not be used to make strong claims about NCLB's treatment effects on public and non-public teachers.

Despite the disappointing predictive power of the national-level models, it is important to keep in mind that the NCLB “treatment” was not the same across states and therefore public school teachers in some states may have received a stronger “dose” of the NCLB “treatment” than others. As mentioned earlier, the accountability movement had been underway for quite some time in this country before the law’s enactment. With this in mind, I now turn to the state-level results.

These results take into account the variation in states’ pre-NCLB accountability policies and their standards for student proficiency. I begin with a broad overview of the law’s impact across the four groups and then I detail the specific findings beginning with perceptions, satisfaction, and finally career intentions.

As shown earlier in Table 5, the state-level models’ predictive power was much higher than those at the national-level. This is perhaps due to the fact that state-level variance was removed and that I was able to include additional predictors that were not appropriate in the national-level analysis (i.e., state per pupil expenditures, percent of students eligible for free- or reduced-price lunch) because these data were not applicable to or available for private and Catholic schools. On a similar note, the statistically significant results also tend to have more practical relevance compared to the national-level results.

As was the case for the presentation of the national-level results, for the state-level results I begin with the relationship between NCLB and teachers’ perceptions and end with teachers’ career intentions.

However, before delving into the specific results of each regression analysis, I begin with a figure that summarizes the state-level findings. In the center of Figure 4, I list the four groups of states. To the left of the groups’ names are the variables that significantly changed because of

NCLB. The law corresponded with a significant increase in the number of hours teachers worked in two groups of states. This effect was denoted with the (+) symbol. The NCLB treatment effects on the remaining variables displayed on the left-hand side of the figure were moderated by other predictors; therefore, the shift in those outcome variables significantly depended upon the value of the moderating variable and the direction of change is not able to be noted. The variables on the right-hand side are those that significantly changed from 2003 to 2007; the direction of the shift is noted by the (+/-) symbols.

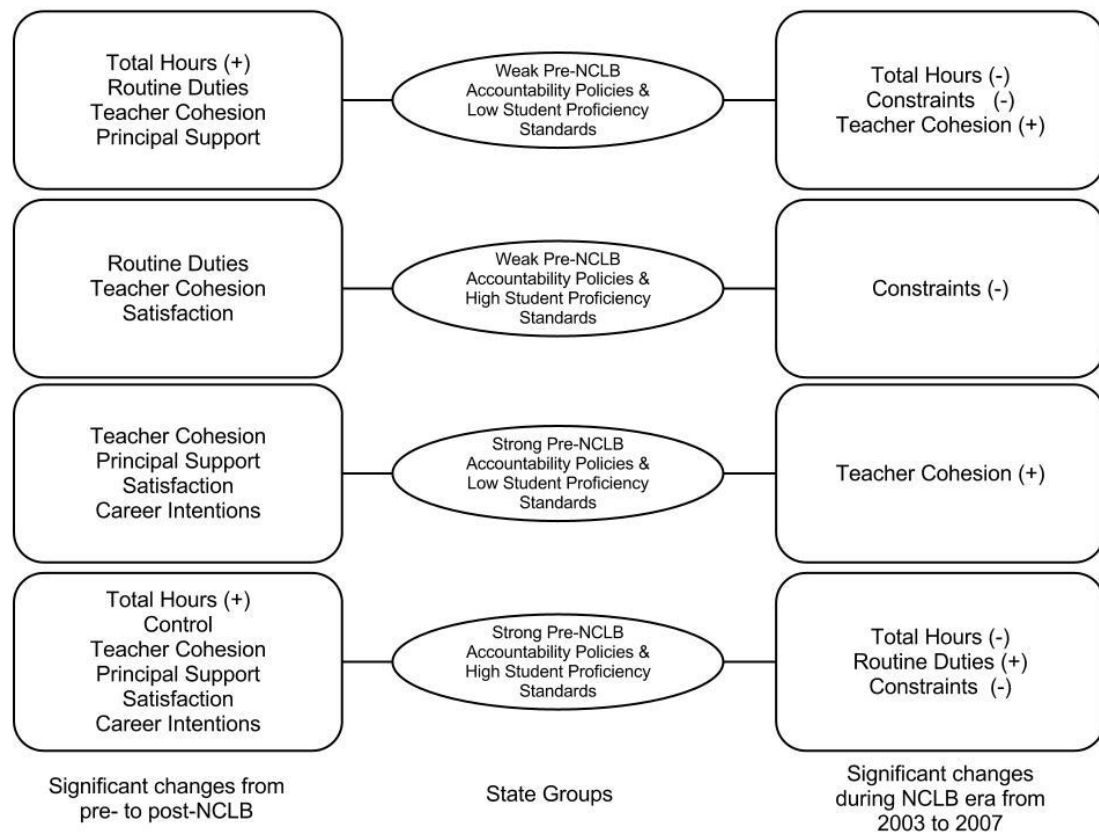


Figure 4. State-level changes in teacher outcome variables across states differing in their pre-NCLB accountability policies and proficiency standards.

As is evident in the figure, teachers in states with weak pre-NCLB accountability policies and low standards for student proficiency as well as those in states with strong pre-NCLB accountability policies and high standards for student proficiency experienced the most changes corresponding with NCLB and the greatest number of changes in the outcomes of interest from 2003 to 2007.

One noteworthy finding is that the teachers in group of states at the base of the figure – those with strong pre-NCLB policies and high proficiency standards - were the only group to experience a change in their perceptions of control after NCLB's enactment. They were also the only teachers to perceive routine duties and paperwork as greater obstacles from 2003-2007. Another result of interest is the lack of change in some of the outcome variables from 2003-2007. On the right hand side of the figure, it is evident that teachers' perceptions of control and principal support as well as their career satisfaction and intentions remained unchanged despite the fact that by the 2005-2006 school year, all states were required to measure each student's reading and math achievement annually in grades three through eight.

I now turn to the specific results from each of the regression analyses to discuss the relationship between NCLB and each teacher outcome variable as well as the specific predictors that moderated the law's effects. I want to remind the reader that only five data points were available (three pre-NCLB and two post-NCLB) for teachers' perceptions of routine duties, teacher cohesion, and principal support. Given the limited pre-NCLB trend line, the results should be interpreted with caution.

NCLB's State-level Effects on Teachers' Workplace Perceptions

Role stress. As was the case for the national-level analysis, the two proxies for role stress were total hours worked and teachers' perceptions of routine duties and paperwork as obstacles to teaching.

Total hours. The regression model for total hours worked accounted for almost three quarters (73%) of the variance in the outcome variable. The results shown in Table 16 suggest NCLB was correlated with an increase in hours worked by teachers in the two extreme groups of states in terms of the strength of their pre-NCLB accountability policies and student proficiency standards - WEAKACCTLOWPROF and STRONGACCTHIGHPROF. Teachers in these same two groups of states were the only ones to also decrease the number of hours worked from 2003 to 2007.

NCLB was not related to a significant change in hours worked by teachers in the WEAKACCTHIGHPROF and STRONGACCTLOWPROF states.

Table 16
Significant State-level Regression Results for Role Stress- Total Hours Worked

| | <i>Unstandardized Coefficients</i> | |
|--|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | -1343.90*** | 100.38 |
| Year | .70*** | .05 |
| Per pupil expenditures | -.001*** | .00 |
| Percentage of minority students | .04*** | .01 |
| Percentage of free or reduced price lunch students | -8.30*** | 2.11 |
| WEAKACCTLOWPROF_NCLB | 2.51** | .87 |
| STRONGACCTHIGHPROF_NCLB | 1.99* | .78 |
| WEAKACCTLOWPROF_TIME_AFTER_NCLB | -.49* | .21 |
| STRONGACCTHIGHPROF_TIME_AFTER_NCLB | -.45* | .188 |

Notes: $R^2 = (.73)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Several other predictors in the model had a significant main effect on the number of hours teachers worked. Each year correlated with an increase in the number of hours teachers worked overall. The more money spent by states, the fewer hours worked by teachers; however, this difference in practical terms was negligible. Teachers with higher percentages of minority students in their schools tended to work more hours but again the regression coefficient is practically insignificant. Those in schools serving large populations of students from low income families tended to work fewer hours.

Routine duties. I now turn to the results of the regression model for teachers' perceptions of routine duties - the second proxy for role stress in this study. Almost half (47%) of the variance in teachers' perceptions of routine duties was accounted for by the regression model (see Table 17).

Table 17
Significant State-level Regression Results for Perceptions of Role Stress - Routine Duties

| | <i>Unstandardized Coefficients</i> | |
|------------------------------------|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Per pupil expenditures | 0.00*** | 0.00 |
| Total hours worked | -.08* | 0.04 |
| Control | .86* | 0.35 |
| Satisfaction | -.17* | 0.08 |
| WEAKACCTHIGHPROF_NCLB_Constraints | -.58* | 0.28 |
| WEAKACCTLOWPROF_NCLB_Satisfaction | .75** | 0.26 |
| STRONGACCTHIGHPROF_TIME_AFTER_NCLB | -.25** | 0.09 |

Notes: $R^2 = (.47)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Per pupil expenditures, total hours worked, teachers' perceptions of control and career satisfaction all significantly predicted teachers' perceptions of routine duties. The more money states spent on students, the less likely teachers were to perceive routine duties as obstacles. This effect in practical terms, however, is zero. Teachers who worked more hours were more likely to perceive routine duties and paperwork as obstacles to teaching. Teachers who perceived high levels of control as well as those who were satisfied with their career choice were less likely to perceive routine duties as inhibiting their ability to teach.

The NCLB treatment effect on teachers in states with weak pre-NCLB accountability policies was moderated by either constraints or satisfaction. Specifically, those in the WEAKACCTHIGHPROF states who perceived constraints as problematic were less likely to agree that perceptions of routine duties and paperwork were obstacles to teaching. Teachers in states with WEAKACCTLOWPROF who were more satisfied with their career choice were more likely to agree that routine duties interfered with their teaching.

Finally, teachers in states with STRONGACCTHIGHPROF perceived routine duties and paperwork as greater obstacles from 2003 to 2007.

Constraints. Moving from perceptions of role stress to the linear regression model predicting teachers' perceptions of constraints, the results displayed in Table 18 suggest that from pre- to post-NCLB none of the groups' perceptions of constraints significantly changed; however, teachers in three out of the four groups perceived significantly fewer problems related to student behavior, attendance, etc. from 2003 to 2007. The regression model used accounted for almost 60 percent of the variance in teachers' perceptions of constraints.

Table 18
Significant State-level Regression Results for Perceived Constraints

| | Unstandardized Coefficients | |
|--|-----------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Per pupil expenditures | 0.00* | 0.00 |
| Total hours worked | -.07*** | 0.02 |
| Percentage of minority students | -.02*** | 0.04 |
| Percentage of free or reduced price lunch students | -1.97** | 0.63 |
| WEAKACCTLOWPROF_TIME_AFTER_NCLB | 0.20** | 0.06 |
| WEAKACCTHIGHPROF_TIME_AFTER_NCLB | 0.28*** | 0.07 |
| STRONGACCTHIGHPROF_TIME_AFTER_NCLB | 0.16** | 0.06 |

Notes: $R^2 = (.58)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Teachers in the STRONGACCTLOWPROF group were the only ones who did not significantly change their perceptions of constraints from 2003-2007.

Statistically speaking, each of the demographic covariates predicted teachers' perceptions of constraints. The more money states spent per pupil the less likely teachers were to perceive constraints, but practically speaking, the effect of the dollars spent was zero. Those who worked more hours, those who worked in schools with higher percentages of minority students, and those who worked in schools with higher percentages of students eligible for free or reduced price lunch were more likely to perceive higher levels of constraints.

Control. Turning now to the linear regression model predicting teachers' perceptions of control over classroom instruction, accounting for approximately one third of the variance in teachers' perceptions of control, the results are provided in Table 19. Since almost 70 percent of the variance in teachers' perceptions of control is unexplained by this model, the results should be interpreted with caution.

Table 19
Significant State-level Regression Results for Perceived Control

| | <i>Unstandardized Coefficients</i> | |
|--|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Year | 0.01* | 0.01 |
| Per pupil expenditures | 0.00*** | 0.00 |
| Total hours worked | 0.01* | 0.01 |
| Percent of minority students | -.004*** | 0.00 |
| Constraints | 0.05** | 0.02 |
| STRONGACCTHIGHPROF_NCLB | 2.97*** | 0.90 |
| NCLB_STRONGACCTHIGHPROF_Total hours worked | -.05** | 0.02 |

Notes: $R^2 = (.34)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Over time, public teachers' perceptions of control nationally increased modestly. Teachers who worked in schools with more minority students tended to perceive less control while teachers who perceived fewer constraints perceived more control. However, all of these coefficients, in practical terms, are essentially zero.

NCLB was related to a significant increase in teachers' perceptions of control in states with STRONGACCTHIGHPROF. This relationship, however, was moderated by the number of hours teachers worked. Those who worked more hours perceived a decrease in control over their classroom instruction in states with STRONGACCTHIGHPROF.

NCLB did not correlate with changes in perceptions of control held by the teachers in the other three groups nor did any of the four groups of teachers' perceptions of control change significantly from 2003-2007.

The takeaway from this analysis is that NCLB only correlated with an increase in teachers' perceptions of control for those working in states with high proficiency levels and a

history of strong accountability policies. This impact, however, was moderated by the number of hours teachers worked.

Teacher cohesion. Now to the second to the last teacher perception variable – teacher cohesion. Accounting for two thirds of the variance in teacher cohesion, the results of the linear regression model shown in Table 20 suggest that other variables moderated NCLB’s effects across all four groups of states.

Over time, perceptions of teacher cohesion have decreased while teachers working in schools with higher concentrations of low poverty students tend to be more likely to perceive higher levels of teacher cohesion.

Table 20
Significant State-level Regression Results for Perceptions of Teacher Cohesion

| | <i>Unstandardized Coefficients</i> | |
|--|------------------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Constant | -253.57 | 70.97 |
| Year | 0.13*** | 0.04 |
| Percentage of free or reduced price lunch students | -1.78* | 0.81 |
| STRONGACCTHIGHPROF_NCLB_Constraints | -1.09*** | 0.24 |
| WEAKACCTLOWPROF_NCLB_Routine duties | 0.51* | 0.24 |
| STRONGACCTLOWPROF_NCLB_Routine duties | 1.12*** | 0.25 |
| WEAKACCTLOWPROF_NCLB_Satisfaction | -0.56* | 0.27 |
| STRONGACCTLOWPROF_NCLB_Satisfaction | 0.54* | 0.21 |
| STRONGACCTHIGHPROF_NCLB_Satisfaction | -0.41* | 0.18 |
| WEAKACCTLOWPROF_NCLB_Intentions | 0.72* | 0.30 |
| WEAKACCTHIGHPROF_NCLB_Intentions | 0.71** | 0.26 |
| WEAKACCTLOWPROF_TIME_AFTER_NCLB | -0.28** | 0.10 |
| STRONGACCTLOWPROF_TIME_AFTER_NCLB | -0.30* | 0.13 |

Notes: $R^2 = (.66)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

While there was no main effect of NCLB on the groups of teachers, the law’s treatment effect was moderated by other predictors. Specifically, teachers in STRONGACCTHIGHPROF

states who perceived low levels of constraints perceived higher levels of teacher cohesion.

Teachers in STRONGACCTLOWPROF and WEAKACCTLOWPROF states who perceived routine duties as inhibiting perceived higher levels of teacher cohesion.

With the exception of the WEAKACCTHIGHPROF states, satisfaction moderated the relationship between NCLB and teachers' perceptions of teacher cohesion in the other three groups of states. Teachers who were more satisfied with their career choice in the STRONGACCTLOWPROF states perceived higher levels of teacher cohesion. However, teachers in STRONGACCTHIGHPROF and WEAKACCTLOWPROF states who were less satisfied with their career choices perceived higher levels of cohesion with their colleagues after the law's enactment.

The correlation between NCLB and perceptions of teacher cohesion in states with weak pre-NCLB accountability policies was moderated by teachers' career intentions. Specifically, those who intended to leave the field perceived lower levels of teacher cohesion.

From 2003 to 2007, teachers in WEAKACCTLOWPROF and STRONGACCTLOWPROF states perceived a greater sense of cohesion with their teacher colleagues.

In short, NCLB's relationship with teacher cohesion was moderated by one or more the following across all four groups of states: perceptions, career satisfaction, and career intentions and during the years that NCLB has been in place, teachers in WEAKACCTLOWPROF and STRONGACCTLOWPROF states perceived a greater sense cohesion.

Principal support. Now to the results of the final perception variable in the state-level regression analysis shown in Table 21. A significant portion (81%) of the variance in teachers' perception of principal support was accounted for by the model.

Table 21

Significant State-level Regression Results for Perceptions of Principal Support

| | Unstandardized Coefficients | |
|--|-----------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Percentage of minority students | -.01* | 0.00 |
| Percentage of free or reduced price lunch students | -1.54* | 0.66 |
| Routine duties | 0.13* | 0.06 |
| Teacher cohesion | 0.46 | 0.07 |
| Satisfaction | -.14* | 0.06 |
| WEAKACCTLOWPROF_NCLB_Teacher Cohesion | .36* | 0.16 |
| STRONGACCTLOWPROF_NCLB_Constraints | -1.40** | 0.52 |
| STRONGACCTHIGHPROF_NCLB_Intentions | -.32* | 0.16 |
| STRONGACCTLOWPROF_NCLB_Satisfaction | -.59* | 0.23 |

Notes: $R^2 = (.81)$, * $p \leq .05$. ** $p \leq .01$.

Two of the demographic covariates had a main effect on principal support. Teachers in schools with higher percentages of minority students and large populations of students eligible for free or reduced price lunch were more likely to perceive higher levels of principal support.

Teachers who perceived routine duties as obstacles, as well as those who perceived higher levels of teacher cohesion were likely to perceive higher levels of principal support.

Those who were more satisfied with their career choice were less likely to perceive high levels of principal support.

In three of the four groups of states, the NCLB treatment effect significantly interacted with other variables. The moderator varied by group. Specifically, teachers in WEAKACCTLOWPROF states who perceived high levels of teacher cohesion perceived an increase in support from their principals. In the STRONGACCTLOWPROF states, those who perceived few constraints and those with lower levels of career satisfaction were more likely to perceive greater levels of principal support. Teachers in states with STRONGACCTHIGHPROF who intended to remain in teaching tended to perceive lower levels of support from their principal following the law's enactment. Teachers in the WEAKACCTHIGHPROF group did

not experience a significant change in their perceptions of principal support. Nor was the treatment effect for this group moderated by another variable.

Across groups, teachers did not significantly change their perceptions of teacher support from 2003-2007.

NCLB's State-level Effect on Teachers' Career Satisfaction

With the perception results complete, I now turn to the next variable in the conceptual framework in Figure 1 – career satisfaction. Accounting for over half (60%) of the variance in teachers' career satisfaction, the results of the linear regression model are provided in Table 22.

Table 22
Significant State-level Regression Results for Career Satisfaction

| | Unstandardized Coefficients | |
|--|-----------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| PPE | 0.00*** | 0.00 |
| Constraints | -.25** | 0.10 |
| Control | -2.07*** | 0.34 |
| STRONGACCTHIGHPROF_NCLB | -15.12** | 5.44 |
| NCLB_STRONGACCTHIGHPROF_Total hours worked | 0.30** | 0.10 |
| NCLB_WEAKACCTHIGHPROF_Control | 2.93** | 0.99 |
| NCLB_STRONGACCTLOWPROF_Control | -8.19** | 2.36 |

Notes: $R^2 = (.61)$, ** $p \leq .01$. *** $p \leq .001$.

The only significant demographic covariate to predict teacher career satisfaction was states' per pupil expenditures. Practically speaking, however, the effect of the spending on teachers' career satisfaction was negligible. In general, teachers who perceived fewer constraints were more satisfied. Likewise, the more control perceived, the more satisfied teachers were.

NCLB correlated with an increase in career choice satisfaction for teachers in the STRONGACCTHIGHPROF states.. This treatment effect, however, was moderated by the number of hours teachers worked. Those working more hours were more likely to have lower levels of satisfaction following the law's enactment.

For teachers in states with WEAKACCTHIGHPROF and STRONGACCTLOWPROF, the amount of perceived control moderated the relationship between NCLB and career satisfaction. Those in WEAKACCTHIGHPROF states who perceived higher levels of control reported feeling less satisfied while those perceiving higher levels of control in STRONGACCTLOWPROF reported higher levels of career satisfaction following the law's enactment.

NCLB's State-level Effect on Teachers' Career Intentions

Now to the final outcome variables in the state-level analysis. More than half (54%) of the variance in teachers' career intentions was accounted for by the predictors in the regression model. The results are displayed in Table 23.

Table 23
Significant State-level Regression Results for Career Intentions

| | Unstandardized Coefficients | |
|--|-----------------------------|-------------|
| | <i>B</i> | <i>SE B</i> |
| Total hours worked | -.08** | 0.03 |
| Constraints | -.46*** | 0.10 |
| Satisfaction | 0.34*** | 0.07 |
| STRONGACCTHIGHPROF_NCLB | -15.59* | 6.07 |
| STRONGACCTHIGHPROF_NCLB_Total hours worked | 0.29* | 0.11 |
| STRONGACCTHIGHPROF_NCLB_Constraints | 0.70* | 0.31 |
| STRONGACCTLOWPROF_NCLB_Constraints | 1.72* | 0.73 |

Notes: $R^2 = (.54)$, * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

None of the demographic covariates significantly predicted teachers' career intentions; however, teachers who worked more hours, perceived fewer constraints, and had higher levels of teacher satisfaction were more likely to plan on remaining in the field.

In STRONGACCTHIGHPROF states teachers significantly increased their intentions to remain in the field after 2002. However, this effect was moderated by the number of hours teachers worked as well as the degree to which they perceived constraints. Teachers in this group who worked more hours were less likely to want to remain in teaching while those who perceived more constraints were more likely to want to continue teaching.

NCLB's relationship with the career intentions of those in STRONGACCTLOWPROF states was also moderated by perceived constraints. Those perceiving more constraints were also more likely to endorse a desire to remain in teaching.

Following the law's enactment, the career intentions of teachers in states that had weak pre-NCLB accountability policies did not significantly change.

To summarize, NCLB was correlated with changes in teachers' career intentions in only those states that had strong pre-NCLB policies in place. The NCLB treatment effect for these teachers was moderated by teachers' perceptions.

CHAPTER V.

Discussion

By focusing on the pre-cursor conditions that foster student achievement rather than the achievement scores themselves, this study takes a holistic approach to understanding accountability's far reaching influences (Tell, 1999). This approach does not shun NCLB's intentions for improving performance. Rather, it proposes broadening the measures of improvement so that teachers' perceptions, satisfaction, and career intentions are elevated from a place of "unanticipated outcomes to the level of valued goals" (Goodlad, 1979, p. 311) and measured results.

Contributions

Adopted from the world of industrial organizational psychologists and adapted to complement the literature on teachers' perceptions of the workplace, this study's conceptual framework proved to be a fitting representation of the constructs influenced by external accountability pressures. By accounting for the multiple levels (i.e., federal, state, local, and personal) and dimensions (i.e., structural, social and political) affecting teachers' perceptions, it is a solid representation of the factors important to teachers and their experiences in the classroom. The framework reminds the field that the vital realities of context, human psychology, and the process of change need to be further studied and honored if we are to make significant improvements in our classrooms.

This study employed a strong design for a post-hoc analysis of a national policy's influence. Through my use of comparison groups at the national-level and my examination of NCLB's influence across various state contexts, this study is the first to account for varying

degrees of NCLB's "doses" of accountability as defined by states' pre-NCLB accountability policies and student proficiency standards.

Conclusions

This study's strong, holistic conceptual framework and design provide robust evidence regarding NCLB's influence on teachers. Taking advantage of the rich longitudinal SASS data set built upon responses from state and nationally representative samples of teachers answering reliable and valid items measuring perceptions, satisfaction, and career intentions, I had the unique opportunity to not only measure NCLB's treatment effect on public, Catholic, and private school teachers' perceptions, satisfaction, and career intentions but also explore how varying "doses" of NCLB across groups of states related to changes in teachers' perceptions, satisfaction, and career intentions. In the following sections I discuss the national- and state-level insights gained through this study.

National-level. Despite using the richest longitudinal national data set available for the outcomes of interest, the explanatory powers of the national-level regression models were weak and therefore their results must be cautiously interpreted. With this caveat in mind, I summarize and interpret the national-level results in the following paragraphs.

From pre- to post-NCLB, teachers from all three groups reported working more hours, perceived routine duties and paperwork as less of an obstacle to teaching, perceived increases in teacher cohesion as well as increases in principal support. There were only two findings for public teachers from pre- to post-NCLB that differed from both Catholic and private school teachers. Only public teachers' perceptions of constraints increased during this time period with their non-public teachers remained unchanged. The other public versus non-public contrast was

that public teachers perceived more control following the law's enactment while non-public teachers perceived a decrease in control.

The findings for teacher satisfaction and career intentions were mixed. From pre- to post-NCLB, Catholic teachers reported an increase in their career satisfaction while public and private teachers reported a decrease in their career satisfaction. Public and Catholic teachers reported greater intentions to stay in their careers while private teachers were less inclined to remain in teaching. For public and non-public teachers alike, it is important to note that these treatment effects were moderated by school, teacher, and student demographic variables as well as the other key predictors in the models (e.g., other perception variables, satisfaction, and career intentions).

In the post-NCLB period from 2003 to 2007, all three groups reported working fewer hours, perceived constraints as less problematic, perceived less control, and were more inclined to leave the profession. During this same time frame, public and private teachers perceived routine duties and paperwork as less of an obstacle to teaching. Teachers in these two groups also perceived greater principal support but reported feeling less satisfied with their career choice. Finally, public teachers were the only group to perceive a decline in teacher cohesion from 2003 to 2007.

In short, public and non-public teachers' perceptions, career satisfaction, and career intentions changed from pre- to post-NCLB as well as from 2003 to 2007. In the following paragraphs, I speculate as to why such patterns emerged. The possible implications of these findings either relate to measurement issues or policy issues. In the following paragraphs, I discuss both types of issues.

Measurement issues. As mentioned earlier, the predictive powers of the national-level models were statistically weak. Their limited powers may further confirm the “widely-prevalent views in sociological research that schools develop their own internal normative structures that are relatively immune to external influences, and that teaching is an essentially isolated occupation in which teachers are left largely to their own devices...(Lortie 1975)” (as cited in Abelman, Elmore, Even, Kenyon & Marshall, 1999, p. 39).

Another reason for the limited power may be that the SASS items used to create the variables for this study were not perfect proxies for the constructs being measured. While valid, reliable, and reflective of the literature, many of variables consisted of a limited number of items (sometimes only a single item) and therefore may have been unable to fully capture the constructs they represented.

Another alternative explanation for the model’s limited power may have to do with the perceptions themselves. As explained by James and Jones (1974),

“...perceptual responses may be affected by...(a) selectivity of stimuli, (b) organization of stimulus patterns, (c) frequency of previous experience with stimulus patterns and responses, (d) reinforcement history, (e) conditions prevalent at the moments of perception, and (f) indicators or measurement procedures of perception (Secord & Backman, 1964). Thus, perception is an internal representation of external objects and is subject to influence by several individual differences” (p. 1102).

Given the multitude of factors that influence an individual’s perceptions, it may become less surprising that NCLB’s relationship with these outcomes nationally was difficult to predict.

With these measurement issues in mind, I now speculate as to how issues related to the policy itself may have contributed to the results. Since my data do not speak to these issues directly, these are simply conjectures that may inform future lines of research and policy.

Policy issues. Public and non-public teachers alike experienced more positive than negative changes in the outcomes of interest from pre- to post-NCLB. This pattern goes against what the rhetoric suggests. I theorize that these findings were due to a couple of compounding forces - NCLB itself and an ever increasing call for additional accountability for public and non-public teachers alike.

As mentioned earlier, NCLB contained a significant number of provisions beyond the standards and assessment ones that receive the most attention. In particular, the Highly Qualified Teacher provision required immediate attention by states. The purpose of this provision was to “improve academic achievement by increasing the number of highly qualified teachers and administrators” (U.S Department of Education, 2007, p. 4). All newly hired teachers had to already have the credentials to be deemed highly qualified and all others had to meet the qualifications just a few years following the law’s enactment.

The additional training, professional growth, and incentive to fulfill the requirements as soon fueled by the Highly Qualified Teacher provision may have touched public teachers’ lives in a more immediate, direct, and sustained (and possibly positive) way than the standards, testing, and related sanctions for schools in need of improvement. Focusing first and for a prolonged period on professional development rather than testing and sanctions may have led to the overall positive tone of the national findings.

Turning to the non-public teachers’ results, “overall, 44 percent of private schools had at least one participant in an *ESEA* program...The two *ESEA* programs with the highest levels of

participation were State Grants for Innovative Programs (20 percent) and Improving Teacher Quality State Grants (20 percent)” (United States Department of Education, 2007). Under these NCLB funding streams, the most common services provided to non-public schools were “professional development for teachers and the provision of equipment and materials” (United States Department of Education, 2007, p. 22). These additional resources may relate to the positive changes for non-public teachers from pre- to post-NCLB; however, given the limited non-public participation in these NCLB programs, there were most likely other influential factors.

A second reason for why changes in the outcome variables were not dramatically different for public teachers compared to their non-public colleagues could be due to the NCLB “dose” administered across states. The “dose” administered to public school teachers varied significantly across the country because states differed in the strength of their pre-NCLB accountability policies and student proficiency standards.

As mentioned earlier, many states set low bars for student proficiency so as to game the system and many of also backloaded their trajectories for 100 percent student proficiency in order to delay the negative sanctions associated with failure; therefore, independent of their proficiency levels, few public teachers had felt the effects of law’s testing provision within the first five years of the law (Chudowsky & Chudowsky, 2008). Given the strong focus on supporting teacher training and the attempts to delay the consequences linked to test results, the pattern of results becomes somewhat more intuitive.

Despite improvements in most of the perception variables from pre- to post-NCLB, teachers across all three groups perceived less control and were less inclined to want to remain in teaching as long as possible from 2003 to 2007. While my data do not speak to why this may be

the case, I speculate that these negative changes were fueled by the national-level rhetoric targeting, and sometimes vilifying, teachers in the public and private sectors and the continuous push for more measures of accountability.

The external pressure for more nuanced accountability measures that pin-point teachers' contributions to student achievement scores in the case of public schools and the push for the release of non-public school data has increased from the onset of NCLB. These accountability pressures may have been correlated with the negative changes experienced by public and non-public teachers from 2003-2007.

In 2005, public teachers witnessed the national push for states to use growth models to calculate AYP when the United States Department of Education invited states to pilot alternative ways to calculate student achievement over time (Riddle, 2008). "Such models may compare current performance of specific pupils or cohorts to past performance, or may project future performance of pupils/cohorts based on past changes in their performance level" (Riddle, 2008, p. 5). Through these longitudinal models, achievement gains may be attributed to specific teachers or groups of teachers in specific grade levels. It is easy to imagine that this prospect is threatening to many teachers – especially when they perceive little control over their school policy decisions about curriculum and use of instruction time (Hamilton et al., 2007). The calls for additional accountability are directed at non-public teachers, too. During the course of the law, private schools accepting federal funds through NCLB (and voucher programs within specific states) continued to be pressured to release school-level performance data (e.g., Mathews, 2002).

It's quite possible that positive perceptions of the workplace associated with the passage of NCLB were not enough to override additional calls for external accountability pressure. For

both public and non-public teachers alike, it's possible although not verifiable based on the data analyzed for this study, that external pressure for additional accountability may have influenced public and non-public teachers alike to perceive less control and therefore increase their desires to leave the profession. The relationship between perceptions of control, career intentions, and the threat of accountability pressure - for public teachers and non-public teachers - may be best described using the "sleeping effect" model (Bradley, 2007). The pressure only began to cause problems after an extended and sustained exposure. Also, the increased annual testing element of NCLB only began in 2005. The three to four year delay between the implementation of the law and its increased testing requirement (and its corresponding sanctions) may be another reason that the public versus non-public teachers did not vary greatly in terms of the outcomes measured.

Turning now to effects of the law on public school teachers – the law's intended target – these teachers experienced increases in perceived constraints and control from pre- to post-NCLB and decreases in perceived teacher cohesion from 2003 to 2007. I believe it is important to understand these results in terms of their contribution to the literature and it may be helpful to cautiously speculate as to why these findings emerged.

The effect of the law on teachers' perceptions of constraints is a contribution to the field because it adds nuanced information about an outcome already studied by Dee and colleagues (2011) at the national-level. While their work controlled for previous exposure to accountability policies and found that NCLB led to a reduction in teachers' perceived constraints, this study suggests that the law was correlated with an increase in teachers' perceived constraints nationally.

My finding may be explained by the work of others. Specifically, teachers elsewhere identified student absenteeism and tardiness as factors that hampered their efforts to raise student achievement (Hamilton et al., 2007). These constraints may have been further underscored in those schools that released their student attendance rates, etc. as part of their performance indicators on the school report cards required under NCLB. A more systematic and concerted effort to gather, examine, and publish these data may have further raised teachers' awareness about these student-related issues.

The effects of the law on teachers' perceptions of control further confirms previous findings (e.g., Grissom et al., in press). The reason for this increase may be that teachers perceived NCLB as beneficial in terms of how it influenced their "efforts to align instruction with standards and...to improve their own practices" (Hamilton et al., 2007, p. xix).

As for the reduction in perceived teacher cohesion from 2003 to 2007, to my knowledge this is the first time nationally-representative results support critics' claims that this law would contribute to a blame culture and erode collaboration. One might speculate that the NCLB provisions that did not apply to the non-public teachers – namely standards and accountability – may be related to these unique changes public teachers' perceptions of the decline in teacher cohesion.

Overall, the national-level findings suggest there are affordances and limitations in the federal government's ability to influence the teacher workforce. Focusing specifically on public school teachers - the sector targeted by the law- NCLB was significantly correlated with changes in teachers' perceptions, satisfaction, and career intentions. The treatment effects overall, however, were not robust compared to the non-public teachers in the comparison groups.

The law's inability to dramatically change public school teachers' perceptions, satisfaction, and career intentions may be due to the law's assumption about how schools work. "School-level accountability approaches bank on school members' identification and interaction with their organizational environment to motivate and direct individual action" (O'Day, 2002, p. 3). NCLB's accountability mechanisms, as defined in this study, weren't able to reach beyond the collective level to mobilize practically significant changes in public teachers' perceptions, satisfaction levels, and career intentions relative to their non-public counterparts (O'Day, 2002).

State-level. Fortunately, the state-level models were stronger in terms of their predictive power and therefore the quality of the linear regression coefficients is much higher than those from the national-level models.

Changes corresponding with NCLB. Given that a primary purpose of NCLB was to "catch" states that had previously employed weak accountability systems, the pattern of results were somewhat surprising. I expected teachers in WEAKACCTHIGHPROF states to experience the most significant changes corresponding with the law's enactment because they were believed to have received the strongest NCLB "dose," since their schools were more likely to fail and the teachers in those schools were not accustomed to the threat of sanctions linked to test results (Wong et al., 2009). Following this same rationale, teachers in STRONGACCTLOWPROF states were expected to experience the fewest changes in the outcome variables of interest following the law because they were accustomed to the threat of accountability and given the low bar set for their students, they were less likely to experience NCLB's repercussions for schools that failed to make AYP. Teachers in the other two groups of states were expected to experience some changes in the outcomes of interest from pre- to post-NCLB because of the piling on of additional or repetitive accountability requirements in the

STRONGACCTHIGHPROF states or the introduction of stronger accountability policies in general in the WEAKACCTLOWPROF states.

Interestingly, the WEAKACCTHIGHPROF group experienced the fewest changes in perceptions, satisfaction, and career intentions from pre- to post-NCLB. The law's main effects were significant in only the STRONGACCTHIGHPROF and WEAKACCTLOWPROF states. Specifically, compared to their pre-NCLB responses, teachers in STRONGACCTHIGHPROF states reported working longer hours, perceived more control, were more satisfied with their career choice, and were more likely to plan on staying in the field after the law was enacted. Teachers in states with weak pre-NCLB accountability policies and low standards reported working more hours after the onset of law.

Having said this, the law's effects were moderated across all four groups of states. Specifically, following the law's enactment, teachers in the STRONGACCTHIGHPROF group who:

- worked longer hours perceived less control, were less satisfied, and more likely to want to leave the field;
- perceived fewer constraints and felt less satisfied with their career reported higher levels of teacher cohesion;
- were more inclined to want to leave the field perceived higher levels of principal support; and
- perceived more constraints were more likely to want to remain in teaching.

After NCLB's enactment, teachers in the STRONGACCTLOWPROF group who:

- perceived routine duties as problematic perceived higher levels of teacher cohesion;

- reported lower levels of satisfaction tended to perceive lower levels of teacher cohesion but higher levels of principal support;
- perceived greater constraints perceived lower levels of principal support but were more likely to intend to stay in the field; and
- perceived higher levels of control reported being more satisfied with their decisions to become teachers.

After the onset of NCLB, teachers in the WEAKACCTHIGHPROF group who:

- perceived fewer constraints were more likely to perceive routine duties and paperwork as problematic;
- intended to stay in the field were more likely to perceive greater levels of teacher cohesion; and
- perceived greater levels of control felt less satisfied with their career choice.

Finally, under NCLB, teachers in the WEAKACCTLOWPROF group who:

- were more satisfied with their career choice were more likely to perceive routine duties as problematic and report lower levels of teacher cohesion;
- perceived routine duties as problematic as well as those who intended on staying in the field were more likely to perceive greater levels of teacher cohesion; and
- perceived greater levels of teacher cohesion also reported greater levels of principal support.

These findings tell a complex story about how the effects of NCLB varied across and within state groups. In the paragraphs below I discuss their implications but first I turn to the less complex findings from the 2003-2007 post-NCLB period.

Changes post-NCLB. Each group saw significant improvements in their perceptions during this time period. Only teachers in STRONGACCTHIGHPROF states perceived an unconstructive change – an increase in routine duties and paperwork as obstacles to teaching. None of the groups' satisfaction and career intentions changed during this time.

Measurement issues. Just as the case was made for the national-level results, the same limitations of the SASS data are relevant for the state-level analyses. There are shortcomings related to the SASS items' abilities to serve as proxies for the constructs measured and there are multiple immeasurable factors that influence an individual's perceptions.

The findings, however, do provide insights into how one might conceptualize future studies measuring the NCLB intervention. As detailed earlier, this study expands the way Grissom et al. (in press) defined states' exposure to NCLB. Like Grissom and colleagues (in press), I accounted for states' pre-NCLB accountability policies' strength but I also incorporated states' proficiency standards for student achievement. Despite this addition, both studies come to similar conclusions (mine were correlational while their findings were causal) about the positive effects NCLB had on teachers' perceptions of control, satisfaction, career intentions. (It is important to note, that Grissom and colleagues (in press) also accounted for the length of time states were exposed to accountability policies).

Although it remains to be tested, these similar findings suggest that the strength of states' pre-NCLB policies and their proficiency standards may not compound one another. To build upon this point, the NCLB treatment effect was significant for only one other group – the WEAKACCTLOWPROF group. Following the law's enactment, this group would have been introduced to stronger accountability measures but there would be no NCLB-driven reason to increase their proficiency standards. Since only one policy lever was introduced (i.e., stronger

accountability) and teachers responded by working longer hours, this is additional evidence that the accountability policy lever and the policy lever for proficiency standards may be working independently.

There is mixed support for such a claim. Others have studied the unique versus combined impacts of pre-NCLB accountability policy strength and proficiency standards on student performance. Specifically, after accounting for pre-NCLB accountability strength and student proficiency standards, Wong et al. (2009) found the effects of these two policy mechanisms were additive for reading scores but math scores were either improved by either sanctions or higher standards. Combining the two did not significantly predict changes in student math performance.

Since Grissom and colleagues' (in press) work accounted for pre-NCLB accountability and mine accounted for the combined effects of accountability and proficiency standards, no study to date has simultaneously analyzed the independent effects of the two policy levers (i.e., sanctions and proficiency standards) on these teacher outcomes. A causal study that measures the unique and combined effects of these policy levers on teachers' perceptions, satisfaction, and career intentions is a necessary step that must be taken in order to inform future accountability policies.

Policy issue. Turning now to why the policy itself and not the way it was measured may have influenced the results, it is important to recall that NCLB was not a "treatment" that occurred universally and all at one time. As mentioned earlier, delaying NCLB's effects by backloading trajectories for student proficiency may have undercut the expected effects of NCLB on specific groups of states compared to others.

Another possible explanation for why the NCLB treatment effect was not significant in the states expected to receive the strongest NCLB “dose” is that many of the underperforming schools that failed to make AYP had previously undergone substantial reforms. Oftentimes, districts became involved (e.g., conducted inspections, restructured staff, and mandated programs) before schools were flagged for improvement by states or the federal government (Mintrop & Sunderman, 2009). Further federal consequences mirroring those already given by the local or state government may not have elicited the anticipated reaction.

While policymakers often use accountability measures to increase educators’ willingness to reform, they fail to understand that the stakes and punishments cannot be calibrated to affect only the intended targets (e.g., underperforming teachers; Firestone & Mayrowetz, 2000). While it seems intuitive that the relationship between NCLB and changes in the outcome variables of interest would be most commonly found in states that set high bars for their students but had weak accountability pre-NCLB policies, this simply was not the case. States’ attempts to “game” the system may have potentially blurred the distinctions between the groups of states and therefore distorted the expected pattern of results.

Another reason for the mixed results is the fact that external accountability systems are just one of many factors influencing teacher and schools’ conceptions of internal accountability; “...teachers’ and administrators’ beliefs about teaching and learning, their shared conceptions of who their students are, the routines they develop for getting their work done, and external expectations from parents, communities and the administrative agencies under which they work” (Abelmann, et al., 1999, p. 3) all have profound impacts and therefore may have buffered some of the predicted NCLB pressures.

Unmeasured factors influencing NCLB directly may have played a significant role in impacting the results as well. For example, in addition to proficiency standards, states also significantly vary in terms of their academic content standards. Other factors include states' student demographics and schools' organizational patterns. States with fewer subgroups will perform better in terms of AYP. On a similar note, schools that follow the elementary, middle, and high school organizational pattern may have performed better in terms of AYP while those with primarily kindergarten through eighth grade schools and high schools may be more likely to fail because they have a greater concentration of students required to be tested annually. These factors may have blurred the expected effects of NCLB.

Finally, focusing on the teachers who experienced the most changes corresponding with the onset of NCLB – those in the STRONGACCTHIGHPROF group - one possible reason for why NCLB's treatment effects were most evident in this particular group is that pre-NCLB state accountability systems "either rarely used, or turned away from, high pressure and sanctions as a main lever to motivate teachers. Instead they came to emphasize mild pressure. By contrast, under NCLB, pressure was a central feature" (Mintrop & Sunderman, 2009, p.360).

Another reason for this finding may be gleaned from previous research into how districts responded to calls for stronger standards after the 1994 reauthorization of ESEA. According to Hannaway and Kimball (1997), those identified as "early reformers" (i.e., districts in those states that started implementing standards reform prior to the federal requirement) worked harder to implement reforms despite being further "ahead" than those who began to implement the reforms after 1994. The "early reformers" also projected that greater changes would be required compared to the responses of those who initiated the reform changes post-1994.

Applying Hannaway and Kimball's (1997) findings to this study, one might speculate that those in the STRONGACCTHIGHPROF groups may have known how difficult it would be to implement (additional) accountability provisions with high standards and therefore, in response to the law, they worked harder because they knew how much work would be required to fulfill the requirements of the law.

The takeaway from these findings is that NCLB was associated with changes in the teacher outcome variables at the two extremes – those with STRONGACCTHIGHPROF and those with WEAKACCTLOWPROF. While the states in the “middle” – those with STRONGACCTLOWPROF and WEAKACCTHIGHPROF – did not experience significant changes in the outcomes of interest corresponding to NCLB's enactment.

Since the STRONGACCTHIGHPROF group experienced the most changes from pre- to post-NCLB, the findings suggest that changes associated with NCLB were most likely to occur in those states that were already implementing NCLB-like policies with high standards for their students. Perhaps these states were the ones that were already primed for the reform and therefore had the capacity and experience to implement it.

Despite the rhetoric about how NCLB negatively affects teachers' work experiences, it appears, overall, that the federal government's most far-reaching accountability policy was associated with positive changes for teachers particularly in those states already primed for the law. From 2003 to 2007 teachers from all four groups experienced improvements in their perceptions of the workplace.

While these state-level results call into question the negative claims made about the law, they do highlight a limitation of the law's positive effects. Although the aforementioned improvements in teachers' perceptions post-NCLB are important because perceptions are

correlated with teacher satisfaction and career intentions, as noted in the conceptual framework driving this study, the latter two variables are critical predictors of the outcome that matters most to the NCLB authors – student achievement. Since only teachers in the STRONGACCTHIGHPROF group reported increases in their satisfaction and intentions to remain in the field, it is possible that the lack of movement in these two outcome variables in the other three groups of states may be one possible reason that there has been limited gains in achievement scores since the law’s enactment. The implications of this conjecture is that future accountability policies and programs should strive to incentivize state and local efforts that encourage improvements in teachers’ career satisfaction and career intentions as yet another policy tool for raising student achievement.

Future Research and Policy Opportunities

While this study extends our understanding of NCLB’s relationship with teacher perceptions, satisfaction, and career intentions, our appreciation of the ways in which accountability policies impact teachers in specific contexts remains limited at best. Although the face of NCLB has changed as more and more states receive waivers, the law’s spirit of linking standards and testing to sanctions is likely to be reincarnated when Congress reauthorizes the ESEA. Therefore, NCLB serves as a powerful case study from which we still have a lot to learn.

To better serve those working and learning in our schools, an extensive research agenda focused on the effects of accountability on teachers needs to be fulfilled. This agenda could be conceptualized as two lines of interdependent research. One line could have a more pragmatic approach while the other simultaneously develops a more theoretical focus. The findings from these two lines could continuously feed further research and inform future policies.

On the pragmatic side, one future study could be an extension of this study. Specifically, one could incorporate the 2011-2012 SASS data to be released by the U.S. Department of education within the next couple of years and conduct an interrupted time series analysis. Typically, three data points prior to an intervention (i.e., NCLB) and three data points at a minimum after are often recommended when conducting such an analysis (e.g., Cochrane Effective Practice and Organisation of Care Review Group, 2002). The additional year of post-NCLB data would better approximate the influence of NCLB on teachers nationally and within varying state contexts. Under NCLB, annual assessments in grades three through eight were not officially required until 2005-2006 for math and reading and 2007-2008 for science. Incorporating the 2011 data point would help to determine if the additional testing requirements had a stronger, delayed impact on teachers. Such a study would also be a more sensitive test of NCLB's impact on teachers since many states backloaded their trajectories for student proficiency in order to delay the negative sanctions associated with failure

Another study should compare NCLB's impact on teachers in states that varied in terms of their content standards. The study could also examine the independent effects of proficiency standards and pre-NCLB accountability strength. Its results combined with the findings from an extended version of this study would provide a more comprehensive narrative about the law's influence on teachers.

While waiting for the third post-NCLB data point, another study could take advantage of the extant data used for this study by employing a regression discontinuity (RD) design to make causal claims about the law's effects on teachers. Using Imbens and Lemieux (2008) as a guide, the following paragraphs walk through how a RD analysis provides evidence of causal effects.

Let W be the treatment variable, where $W = 0$ if pre-NCLB and $W = 1$ if post-NCLB, let X be the teachers' background characteristics, and let $Y(1)$ be the outcome (i.e., dependent variable) under treatment ($W=1$) and $Y(0)$ be the outcome (i.e., dependent variable) that serves as the control ($W=0$).

In general, the inference of NCLB's causal effects is possible when the following condition holds: $Y(1), Y(0) \perp W \mid X$,

The symbol \perp means "independence" or "lack of correlation." The \mid means "given" or "conditional on." Therefore, the outcomes $Y(1)$ and $Y(0)$ and the treatment variable (W) are independent, given teachers' background characteristics X .

But in the case of the NCLB intervention, if $X = \text{year}$ and $W = 1$ if post-NCLB, then the unconfoundedness holds because then W becomes a constant given X , and then $Y(1)$ and $Y(0)$ are independent of W . This is how a RD analysis provides inferences of NCLB's causal effects.

To make these causal inferences, specific covariates must be included in the regression models for teachers' perceptions, satisfaction, and career intentions.

Let h signify a time window around the year of the NCLB intervention (i.e., 2002),

- $X_1 = 1$ if $(2002-h \leq t \leq 2002 + h)$ otherwise $X_1 = 0$;
- $W = 1$ ($t \geq 2002$); and
- $X_2 = t - 2002$.

The regression models for each outcome variable would need to include the following covariates: X_1 , $X_1 \times W$, $X_1 + X_2$, $X_1 \times X_2 \times W$, in order to conduct a regression discontinuity analysis for the causal effects of NCLB. The slope coefficient for the interaction $X_1 \times W$ provides an estimate of the causal effects of the law. Such a study could also include additional covariates of interest for example, it could account for the fact that some states have fewer

minority subgroups than other states. States with fewer subgroups will oftentimes perform better in terms of AYP than those with more subgroups. Understanding NCLB's influence across these varying demographic contexts is necessary if the goal is to narrow the achievement gap.

The study might also examine whether the organizational pattern in which teachers work moderated NCLB's influence. Using the SASS data, such a study could compare the pre- and post-NCLB perceptions, satisfaction, and career intentions of those who teach

- one tested subject in a departmentalized setting,
- multiple tested subjects in a self-contained classrooms,
- multiple tested subjects as a member of a team with their colleagues, and
- a “pull-out” class (e.g., special education, reading) to students released from their regular classes.

The findings would determine if NCLB differentially influenced teachers working in particular organizational patterns. Districts could use this information to target additional support for improving and maintaining teachers' positive workplace perceptions, satisfaction, and career intentions as the sun sets on NCLB and they prepare for the next federal accountability policy.

Each of these studies speaks to NCLB-specific impacts. Other studies in this pragmatic line of research should push the research agenda to look more to the future. For example, research is need to determine whether the NCLB waivers significantly influenced teachers' perceptions, satisfaction, and career intentions. Since the onset of NCLB, all states are now considered strong accountability states because from 2002-2011 they all were to implement strong accountability sanctions if their schools failed to make AYP; however, within the past year, many states have received NCLB waivers from the U.S. Department of Education. A future study comparing the influence of NCLB vs. NCLB waivers on the outcomes of interest in this

study would provide critical insights into how perceived flexibility in accountability influences teachers' perceptions, satisfaction, and career intentions.

Looking to the future, a more concerted effort is also needed to collect qualitative data on teachers' perceptions, satisfaction, and career intentions. There are many unanswered questions as to why NCLB influenced certain groups of teachers differently. Without more qualitative data, we will continue to be forced to interpret results based on limited theories and previous research rather than through the voices of the teachers themselves.

All of the aforementioned studies will be limited in value if we fail to strengthen our theoretical understanding of accountability's effects on teachers. In the words of Boyle (2001),

“We take our collective pulse 24 hours a day with the use of statistics. We understand life that way, though somehow the more figures we use, the more the great truths seem to slip through our fingers. Despite all that numerical control, we feel as ignorant of the answers to the big questions as ever” (para. 6.)

Here is where the intersection between the pragmatic and theoretical research agendas exists. All of the aforementioned research opportunities for pragmatic contributions could use existing data to test the current theories available for describing individuals' reactions to accountability.

Although there is a plethora of rich data available, the theoretical models needed to understand how and why teachers (and students) react (or don't) to accountability policies is lacking.

Therefore, there is a great need for the development of theoretical models that are able to predict and describe the effects of accountability on teachers. Such models could assist policymakers in predicting the probable influence of future accountability policies and ideally avoiding undesirable consequences for teachers.

The current theoretical base suggests there are two forms of accountability – internal and external. Further developing our understanding of how teachers and schools develop and maintain an internal sense of accountability as well as respond to external sources of accountability are two avenues for future work. Although policymakers tend to craft accountability reforms based on “normative theories of how schools *ought* to act, uncorrupted by understandings of *why* they act the way they do” (Abelman & Elmore, 1999 p. 42), this study suggests that accountability systems “should take their initial point of departure not from normative theories about how schools *ought* to act, but from a finer-grained understanding of *why* they act the way they do” (Abelman & Elmore, 1999, p. 42).

Further work needs to be done in the field of education for building theoretical and analytical models linking student performance data to teacher perceptions, satisfaction, and career intentions using available large-scale data. The conceptual model driving this study was conceived based on research across multiple sectors. Although some studies included the education sector, the studies tended to sample other industries. Testing the degree to which teachers’ perceptions, satisfaction, and career intentions are able to predict student achievement is an area that needs to be explored further. While others (e.g., Kitmitto, 2006; McLaughlin, Drori, & Rosss, 2000) have begun to build predictive models linking teachers’ SASS perception data and school demographic information with data from state tests and the National Assessment for Educational Progress (NAEP), critical variables such as teacher satisfaction and career intentions were omitted. Adding these variables to the previously tested models may provide a clearer picture of how important these teacher specific factors are in predicting student achievement.

Framing teachers' perceptions, satisfaction, and career intentions in terms of student achievement gains will grab the attention of policymakers and may improve the chances that these teacher-specific factors be valued and honored moving forward.

Further theoretical work is also needed to test whether the threat of sanctions or actual sanctions are enough to significantly alter the teacher-specific factors that predict teacher motivation. To further test this theory, a study should be done to compare states based on the percentage of schools that are either being sanctioned or on the cusp of facing NCLB-driven sanctions. Such a study would test the hypothesis that high stakes associated with NCLB (and potentially future policies) only matter if they directly affect the schools in which the teachers work.

Pushing the research agenda pragmatically and theoretically to learn more about the interplay between accountability and teachers' workplace perceptions, satisfaction, and career intentions as well as the various ways federal policy affects teachers in varying state contexts will lead to necessary insights about the latest intensification of accountability.

This research will better inform future policies. Given the nature of research, the results of these studies will take time. Policymakers work in a world where time is of the essence. While they wait for the results, state and federal policymakers should take steps to incorporate measures of early predictors of teacher behavior (i.e., perceptions of their workplace, satisfaction, motivation, and career intentions) into their accountability systems. Policymakers should first convene researchers, state practitioners, and teachers in an effort to develop shared definitions of these variables. Once definitions are agreed upon, then measures of these variables should be created or adapted from existing measures and schools' scores on these measures should be included in the equation for calculating school performance.

“Accountability systems do not produce performance; they mobilize incentives, engagement, agency, and capacity that produce performance” (Elmore, 2004, p. 294). Policymakers who hold teachers accountable for their practice should also incentivize school organizations to foster positive workplace climates as well as improve and maintain teacher satisfaction and retention. Measuring these teacher-specific variables may assist current accountability systems in overcoming their inability to “create the interaction patterns and normative structures within schools that encourage sustained learning and adaptation” (O’Day, 2002, p. 20) in the face of reform.

Appendices

Appendix A

Overview of ESEA Programs Eligible for Private School Student Participation

| Program | Brief Description | 2007 Appropriation (in millions) |
|---|--|--|
| Improving Basic Programs Operated by LEAs (Title I, Part A) | Provides funds to states and public school districts with high percentages of low-income students to help ensure that all students are capable of meeting challenging academic achievement standards | \$12,838.1 |
| Reading First (Title I, Part B, Subpart 1) | Provides funding to promote reading skills for grades K–3 by providing additional resources, including materials, professional development, diagnostics, and assessments. | \$1,029.2 |
| Even Start (Title I, Part B, Subpart 3) | Promotes educational opportunities for low-income families. Priorities include adult literacy, parenting education, and early childhood education. | \$82.3 |
| Migrant Education (Title I, Part C) | Focuses on meeting the educational needs of migrant students, including minimizing disruption related to moves and overcoming cultural, language, and social barriers. | \$386.5 |
| Improving Teacher Quality State Grants (Title II, Part A) | Seeks to improve academic achievement by increasing the number of highly qualified teachers and administrators. | \$2,887.4 |
| Mathematics and Science Partnerships (Title II, Part B) | Supports partnerships between state education agencies, local education agencies, institutions of higher education, and schools designed to improve students' academic achievement in mathematics and science. | \$182.2 |
| Educational Technology State Grants (Title II, Part D) | Seeks to improve academic achievement through the use of technology in elementary and secondary schools through a variety of means, including initiatives to improve access to technology, the development of technology infrastructure, and professional development in the area of technology. | \$272.3 |
| English Language Acquisition (Title III, Part A) | Helps Limited English Proficiency (LEP) students reach English language proficiency to improve their overall academic performance. Can be used to provide language training to both students and teachers. | \$669.0 |

Notes. From U.S. Department of Education (2007). *Private school participants in federal programs under the No Child Left Behind Act and the Individuals with Disabilities Act: Private School and Public School District Perspective*. Retrieved from <http://www2.ed.gov/rschstat/eval/choice/private/report.pdf>

Appendix A (continued)

Overview of ESEA Programs Eligible for Private School Student Participation

| Program | Brief Description | 2007 Appropriation (in millions) |
|--|---|--|
| Safe and Drug Free Schools and Communities State Grants (Title IV, Part A) | Funds programs to ensure safe and drug-free school environments. Activities supported include professional development; conflict resolution; drug, violence, and suicide prevention; character education; and counseling. | \$346.5 |
| 21st-Century Community Learning Centers (Title IV, Part B) | Supports summer, before-school, and after-school services for students and families from low performing schools. | \$981.2 |
| State Grants for Innovative Programs (Title V, Part A) | Promotes innovative programs in teaching and learning. Funds can be used for professional development, library materials, educational equipment, computer software, mental health services, and parent or community involvement programs. | \$99.0 |

Notes. From U.S. Department of Education (2007). *Private school participants in federal programs under the No Child Left Behind Act and the Individuals with Disabilities Act: Private School and Public School District Perspective*. Retrieved from <http://www2.ed.gov/rschstat/eval/choice/private/report.pdf>

Appendix A (continued)

From: **EDcontactcenter** <EDcontactcenter@edpubs.gov>
Date: Fri, Mar 15, 2013 at 11:53 AM
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<edpubs@inet.ed.gov>
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From: Carrie Scholz [mailto:carrielynnescholz@gmail.com]
Sent: Friday, March 15, 2013 11:32 AM
To: edpubs@inet.ed.gov
Subject: Permission to use exhibit 1 table in dissertation

Hello,

I'm seeking permission to use Exhibit 1 on page 4 in the "Private School Participants in Federal Programs Under the *No Child Left Behind Act* and the Individuals with Disabilities Act: Private School and Public School District Perspective" in my dissertation. The report's website is <http://www2.ed.gov/rschstat/eval/choice/private/report.pdf>

At your earliest convenience, please let me know if my request may be granted. I will, of course, cite the report.

Thank you!
Carrie Scholz

Appendix B

Psychological climate (PC) item composites clustered by four first-order factors

-
- | | |
|--|--|
| • Role stress and lack of harmony | • Leadership facilitation and support |
| Role ambiguity | Leader trust and support |
| Role conflict | Leader goal facilitation |
| Role overload | Leader interaction facilitation |
| Subunit conflict | Psychological influence |
| Lack of organizational identification | Hierarchical influence |
| Lack of management concern and awareness | |
| • Job challenge and autonomy | • Work-group cooperation, friendliness, and warmth |
| Job challenge and variety | Work-group cooperation |
| Job autonomy | Work-group friendliness and warmth |
| Job importance | Responsibility for effectiveness |
-

Notes. From James, L. A. & James, L. R. (1989). Integrating work environment perceptions: Explorations into the measurement of meaning. *Journal of Applied Psychology*, 74, p. 742. Adapted with permission of the author.

Appendix B (continued)

Permission to Use Table from James & James (1989, p. 742)

From: James, Lawrence R <lawrence.james@psych.gatech.edu>
Date: Tue, Nov 27, 2012 at 5:07 PM
Subject: Re: Request to include table in my dissertation
To: Carrie Scholz <carrielynnescholz@gmail.com>

You have my permission. Good luck.

Larry James

----- Original Message -----

From: "Carrie Scholz" <carrielynnescholz@gmail.com>
To: "lawrence james" <lawrence.james@psych.gatech.edu>
Sent: Tuesday, November 27, 2012 12:41:25 PM
Subject: Request to include table in my dissertation

Hello Dr. James,

I am a doctoral student at the University of Illinois-Chicago. My dissertation has been strengthened thanks to the work you've done with organizational and psychological climate research. Thank you for the years of work you've invested.

I'm writing to ask permission to include a table that you and your colleagues created and cite in your *Organizational and psychological climate: A review of theory and research* 2008 paper?

If so, I'd include the table as is and use the same citation you include in the 2008 paper.

From "Integrating Work Environment Perceptions: Explorations into the Measurement of Meaning", by L. A. James and L. R. James, 1989, *Journal of Applied Psychology*, 74, p. 742.

Thank you,

--

Carrie Scholz

Appendix C

Table C1.
Schools and Staffing Survey Items and Scales

| Variable | Survey Item | Scale | How Created? |
|----------------|---|--|--|
| Hours worked | Number of hours spent on school related activities | Continuous | Sum of hours worked before, during, and after school |
| Routine duties | Routine duties and paperwork interfere with my job of teaching | 1= Strongly agree; 4= Strongly disagree | Calculated z-score for item |
| Constraints | To what extent is student tardiness a problem in this school To what extent is student absenteeism a problem in this school To what extent is students cutting class a problem in this school | 1= Serious problem; 4 = Not a problem | Created z-score |

Appendix C (continued)

Table C1. (continued)
Schools and Staffing Survey Items and Scales

| Variable | Survey Item | Scale | How Created? |
|------------------|--|--|----------------------------------|
| Control | How much control do you feel you have in your classroom over selecting textbooks and other materials How much control do you feel you have in your classroom over selecting content, topics and other skills to be taught How much control do you feel you have in your classroom over selecting teaching techniques How much control do you feel you have in your classroom over determining the amount of homework to be assigned How much control do you feel you have in your classroom over disciplining students | Varied by year. | Calculated z-score for composite |
| Teacher cohesion | Most teachers share my beliefs and values about the mission Cooperative effort among staff Rules for student behavior are consistently enforced by teachers | 1= Strongly agree; 4= Strongly disagree | Calculated z-score for composite |

Note. The scale for the control items varied by year. The scales in 1987 and 1990 were 1 = No control; 6 = Great control. The scale in 1993 was 0 = No control; 5 = Great control. The scale in 1999 was 1 = No control; 5 = Great control. The scales in 2003 and 2007 were 1 = No control; 4 = Great control.

Appendix C (continued)

Table C1. (continued)
Schools and Staffing Survey Items and Scales

| Variable | Survey Item | Scale | How Created? |
|-------------------|--|---|-----------------|
| Principal support | Principal knows and communicates what kind of school is wanted The school administration's behavior toward the staff is supportive and encouraging Recognized for a job well done Principal enforces school rules and backs me up | 1= Strongly agree; 4= Strongly disagree | Created z-score |
| Satisfaction | If you could go back to your college days and start over again, would you become a teacher or not | 1 = Certainly would; 5 = Certainly would not | Created z-score |
| Career Intentions | How long do you plan to remain in teaching | 1 = As long as I am able; 5 = Undecided at this time | Created z-score |

Appendix C (continued)

Table C1. (continued)
Schools and Staffing Survey Items and Scales

| Covariate | Survey Item | Scale | How Created? |
|--|--|---|--|
| Percent of students eligible for free or reduced price lunch | 1987 and 1990 - Number of students eligible for free or reduced price lunch; 1993 onward survey asked for the number of students receiving free or reduced price lunch. | n/a | n/a |
| Percent of minority students enrolled | Percent of minority students enrolled | n/a | n/a |
| Teachers' years of experience | Total experience | Continuous | n/a |
| School size | Total number of students enrolled pre-K through 12 th grade | Continuous | n/a |
| Urbanicity | School locale | 1 = Large or mid-size central city; 2 = suburban; 3 = rural | Dummy coded Rural = 1, all others = 0. Suburban = 1 all others = 0. |

Appendix D

Table D1.
Item Codes Used to Generate Data File

| Variable | Item Description | 1987 | 1990 | 1993 | 1999 | 2003 | 2007 |
|-------------------|------------------------|------------------|----------------------------|-------------------------|-------------------------|----------------|----------------|
| Role Stress | | | | | | | |
| Total hours | Total hours worked | TSC234 TSC237 | TSC219 TSC220 TSC221 | T0990 T0995 T1000 | T0273 T0276 T0277 | T0297 20336 | T0260 T0291 |
| Routine duties | Inhibiting routines | TSC247 | . | T1240 | T0305 | T0336 | T0291 |
| Constraints | Student tardiness | TSC262 | TSC254 | T1075 | T0321 | T0364 | T0303 |
| | Student absenteeism | TSC263 | TSC255 | T1080 | T0322 | T0365 | T0304 |
| | Students cutting class | TSC265 | TSC257 | T1090 | T0324 | T0366 | T0305 |
| Teacher cohesion | Cooperative | TSC253 | . | T1270 | T0311 | T0341 | T0296 |
| | Enforce rules | TSC250 | TSC228 | T1255 | T0308 | T0338 | T0293 |
| | Share beliefs | TSC251 | . | T1260 | T0309 | T0339 | T0294 |
| Principal support | Supportive | TSC240 | . | T1205 | T0300 | T0331 | T0286 |
| | Enforce rules | TSC248 | TSC227 | T1245 | T0306 | T0337 | T0292 |
| | Communicates | TSC252 | . | T1265 | T0310 | T0340 | T0295 |
| | Recognizes good job | TSC254 | . | T1275 | T0312 | T0342 | T0297 |
| Control | Textbook used | TSC279 | TSC248 | T1045 | T0293 | T0318 | T0280 |
| | Content taught | TSC280 | TSC249 | T1050 | T0294 | T0319 | T0281 |
| | Teaching techniques | TSC281 | TSC250 | T1055 | T0295 | T0320 | T0282 |
| | Discipline | TSC282 | TSC252 | T1065 | T0297 | T0322 | T0284 |
| | Homework assigned | TSC283 | TSC253 | T1070 | T0298 | T0323 | T0285 |
| Satisfaction | Career satisfaction | TSC261 | TSC236 | T1320 | T0339 | T0382 | T0320 |
| Career intentions | Career intentions | TSC288 | TSC276 | T1370 | T0340 | T0383 | T0321 |

Appendix D (continued)

Table D1. (continued).
Item Codes Used to Generate Data File

| Variable | Item Description | 1987 | 1990 | 1993 | 1999 | 2003 | 2007 |
|---------------------------|-------------------------|----------|----------|----------|----------|----------|----------|
| School demographics | School type | PGMTYPE | PGMTYPE | PGMTYPE | PGMTYPE | PGMTYPE | PGMTYPE |
| | Sector | SECTOR | SECTOR | SECTOR | SECTOR | SECTOR | SECTOR |
| | StateE | STATE | STATE | STATE | STATE | STATE | STATE |
| | Locale | URBANIC | URBANIC | URBANIC | URBANIC | URBANS03 | URBANS8 |
| | Religious affiliation | AFFIL | AFFIL | AFFIL | RELIG | AFFIL | AFFIL |
| | Total enrollment | ENRK12UG | ENRK12UG | ENRK12UG | ENRK12UG | ENRK12UG | ENRK12UG |
| Teacher demographics | Hours teaching Englilsh | TSC159 | TSC130 | T0800 | T0209 | T0070 | T0072 |
| | Hours teaching math | TSC160 | TSC131 | T0805 | T0210 | T0072 | T0074 |
| | Hours teaching science | TSC162 | TSC133 | T0815 | T0212 | T0074 | T0076 |
| | Grade level | TSC144- | TSC117- | T0735- | T0196- | T0055- | T0054- |
| | | TSC149 | TSC122 | T0760 | T0201 | T0060 | T0059 |
| | Full-time teacher | TSCO12 | TSC011 | T0020 | T0051 | T0026 | T0025 |
| Teacher weighted response | Weighted value | TCHWGT | TCHWGT | TCHWGT | TFNLWGT | TCHWGT | TCHWGT |

Appendix E

Table E1.
Revised Code for Teachers' Career Intentions

| 1987-2003 Response Options | 2007 Response Options | 2007 Revised Coding |
|--|---|---------------------------|
| 1 = As long as I am able | 1 = As long as I am able | 1 |
| 2 = Until I am eligible for retirement | 2 = Until I am eligible for retirement benefits for this job | 2 |
| 3 = Will probably continue unless something better comes along | 3 = Until I am eligible for retirement benefits from a previous job | 2 |
| 4 = Definitely plan to leave teaching | 4 = Until I am eligible for Social Security benefits | 2 |
| 5 = Undecided at this time | 5 = Until a specific life event occurs (e.g., parenthood, marriage) | 3 |
| | 6 = Until a more desirable job opportunity comes along | 3 |
| | 7 = Definitely plan to leave as soon as I can | 4 |
| | 8 = Undecided at this time | 5 |

Appendix F

Table F1.
National-level Outcome Variables' Means and Standard Deviations by Year

| Variable | Year | | | | | |
|--------------------|-------|-------|-------|-------|-------|-------|
| | 1987 | 1990 | 1993 | 1999 | 2003 | 2007 |
| Role stress | | | | | | |
| Total hours worked | | | | | | |
| <i>M</i> | 41.26 | 47.54 | 44.79 | 49.29 | 52.22 | 52.32 |
| <i>SD</i> | 10.89 | 7.65 | 12.97 | 7.99 | 9.20 | 8.54 |
| Routine duties | | | | | | |
| <i>M</i> | 2.03 | - | 2.07 | 2.04 | 2.05 | 2.08 |
| <i>SD</i> | .91 | - | .91 | .93 | .93 | .93 |
| Constraints | | | | | | |
| <i>M</i> | 9.76 | 9.57 | 9.36 | 9.41 | 9.18 | 9.54 |
| <i>SD</i> | 1.92 | 1.86 | 1.85 | 1.83 | 1.88 | 1.84 |
| Control | | | | | | |
| <i>M</i> | 24.43 | 24.38 | 19.42 | 19.91 | 16.81 | 16.24 |
| <i>SD</i> | 4.14 | 4.07 | 3.96 | 3.36 | 2.50 | 2.55 |
| Teacher cohesion | | | | | | |
| <i>M</i> | 5.46 | - | 5.62 | 5.72 | 5.25 | 5.28 |
| <i>SD</i> | 1.95 | - | 2.00 | 1.99 | 1.90 | 1.88 |
| Principal support | | | | | | |
| <i>M</i> | 7.32 | - | 7.34 | 7.34 | 6.64 | 6.58 |
| <i>SD</i> | 2.86 | - | 2.90 | 2.86 | 2.64 | 2.59 |
| Satisfaction | | | | | | |
| <i>M</i> | 2.29 | 2.14 | 2.11 | 2.09 | 2.00 | 2.00 |
| <i>SD</i> | 1.27 | 1.21 | 1.20 | 1.18 | 1.14 | 1.44 |
| Career intentions | | | | | | |
| <i>M</i> | 2.33 | 2.16 | 2.44 | 2.15 | 2.04 | 2.08 |
| <i>SD</i> | 1.40 | 1.33 | 1.52 | 1.36 | 1.34 | 1.41 |

Note. The dash (-) denotes the year for which data were excluded from SASS.

Appendix F (continued)

Table F2.
State-level Outcome Variables' Means and Standard Deviations by Year

| Variable | Year | | | | | |
|--------------------|-------|-------|-------|-------|-------|-------|
| | 1987 | 1990 | 1993 | 1999 | 2003 | 2007 |
| Role stress | | | | | | |
| Total hours worked | | | | | | |
| <i>M</i> | 41.43 | 47.97 | 44.74 | 49.48 | 52.42 | 52.64 |
| <i>SD</i> | 1.38 | 1.72 | 2.89 | 2.09 | 2.16 | 1.62 |
| Routine duties | | | | | | |
| <i>M</i> | 1.98 | - | 2.01 | 1.98 | 2.00 | 1.98 |
| <i>SD</i> | .15 | - | .13 | .15 | .10 | .13 |
| Constraints | | | | | | |
| <i>M</i> | 9.71 | 9.52 | 9.33 | 9.28 | 9.15 | 9.44 |
| <i>SD</i> | .36 | .43 | .39 | .43 | .39 | .43 |
| Control | | | | | | |
| <i>M</i> | 23.20 | 23.57 | 18.52 | 18.93 | 16.19 | 15.31 |
| <i>SD</i> | .95 | .84 | .75 | .76 | .49 | .51 |
| Teacher cohesion | | | | | | |
| <i>M</i> | 5.53 | - | 5.81 | 5.77 | 5.29 | 5.31 |
| <i>SD</i> | .27 | - | .27 | .24 | .33 | .29 |
| Principal support | | | | | | |
| <i>M</i> | 7.42 | - | 7.55 | 7.43 | 6.73 | 6.68 |
| <i>SD</i> | .49 | - | .43 | .42 | .43 | .45 |
| Satisfaction | | | | | | |
| <i>M</i> | 2.33 | 2.15 | 2.14 | 2.13 | 2.08 | 2.06 |
| <i>SD</i> | .20 | .17 | .21 | .15 | .19 | .17 |
| Career intentions | | | | | | |
| <i>M</i> | 2.34 | 2.17 | 2.46 | 2.17 | 2.09 | 2.10 |
| <i>SD</i> | .16 | .17 | .19 | .19 | .15 | .18 |

Note. The dash (-) denotes the year for which data were excluded from SASS.

Appendix G

G1. Linear Regression Model for Predicting Total Hours Worked at the National-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) \\ & + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) \\ & + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) \\ & + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) \\ & + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) \\ & + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) \\ & + \beta_{20}(\text{Catholic} \times \text{Time after NCLB}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Time after NCLB}) \\ & + \beta_{22}(\text{Private} \times \text{Time after NCLB}) + \beta_{23}(\text{Rural}) + \beta_{24}(\text{Suburban}) + \beta_{25}(\text{Teaching experience}) \\ & + \beta_{26}(\text{Percent minority students}) + \beta_{27}(\text{School size}) + \varepsilon \end{aligned}$$

Appendix G (continued)

G2. Linear Regression Model for Predicting Teachers' Perceptions of Routine Duties at the National-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) \\ & + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) \\ & + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) \\ & + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) \\ & + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) + \beta_{20}(\text{Catholic} \times \text{NCLB} \times \text{Total hours}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Total hours}) \\ & + \beta_{22}(\text{Private} \times \text{NCLB} \times \text{Total hours}) + \beta_{23}(\text{Catholic} \times \text{NCLB} \times \text{Constraints}) + \beta_{24}(\text{Public} \times \text{NCLB} \times \text{Constraints}) \\ & + \beta_{25}(\text{Private} \times \text{NCLB} \times \text{Constraints}) + \beta_{26}(\text{Catholic} \times \text{NCLB} \times \text{Control}) + \beta_{27}(\text{Public} \times \text{NCLB} \times \text{Control}) \\ & + \beta_{28}(\text{Private} \times \text{NCLB} \times \text{Control}) + \beta_{29}(\text{Catholic} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{30}(\text{Public} \times \text{NCLB} \times \text{Satisfaction}) \\ & + \beta_{31}(\text{Private} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{32}(\text{Catholic} \times \text{NCLB} \times \text{Career intentions}) + \beta_{33}(\text{Public} \times \text{NCLB} \times \text{Career intentions}) \\ & + \beta_{34}(\text{Private} \times \text{NCLB} \times \text{Career intentions}) + \beta_{35}(\text{Catholic} \times \text{Time after NCLB}) \\ & + \beta_{36}(\text{Public} \times \text{Time after NCLB}) + \beta_{37}(\text{Private} \times \text{Time after NCLB}) + \beta_{38}(\text{Rural}) + \beta_{39}(\text{Suburban}) \\ & + \beta_{40}(\text{Teaching experience}) + \beta_{41}(\text{Percent minority students}) + \beta_{42}(\text{School size}) + \beta_{43}(\text{Total hours}) + \beta_{44}(\text{Constraints}) \\ & + \beta_{45}(\text{Control}) + \beta_{46}(\text{Satisfaction}) + \beta_{47}(\text{Career intentions}) + \varepsilon \end{aligned}$$

Appendix G (continued)

G3. Linear Regression Model for Predicting Teachers' Perceptions of Constraints at the National-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) \\ & + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) \\ & + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) \\ & + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) \\ & + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) + \beta_{20}(\text{Catholic} \times \text{NCLB} \times \text{Total hours}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Total hours}) \\ & + \beta_{22}(\text{Private} \times \text{NCLB} \times \text{Total hours}) + \beta_{23}(\text{Catholic} \times \text{Time after NCLB}) \\ & + \beta_{24}(\text{Public} \times \text{Time after NCLB}) + \beta_{25}(\text{Private} \times \text{Time after NCLB}) + \beta_{26}(\text{Rural}) + \beta_{27}(\text{Suburban}) \\ & + \beta_{28}(\text{Teaching experience}) + \beta_{29}(\text{Percent minority students}) + \beta_{30}(\text{School size}) + \beta_{31}(\text{Total hours}) + \epsilon \end{aligned}$$

Appendix G (continued)

G4. Linear Regression Model for Predicting Teachers' Perceptions of Control at the National-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) \\ & + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) \\ & + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) \\ & + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) \\ & + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) + \beta_{20}(\text{Catholic} \times \text{NCLB} \times \text{Total hours}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Total hours}) \\ & + \beta_{22}(\text{Private} \times \text{NCLB} \times \text{Total hours}) + \beta_{23}(\text{Catholic} \times \text{NCLB} \times \text{Constraints}) + \beta_{24}(\text{Public} \times \text{NCLB} \times \text{Constraints}) \\ & + \beta_{25}(\text{Private} \times \text{NCLB} \times \text{Constraints}) + \beta_{26}(\text{Catholic} \times \text{NCLB} \times \text{Time after NCLB}) \\ & + \beta_{27}(\text{Public} \times \text{Time after NCLB}) + \beta_{28}(\text{Private} \times \text{Time after NCLB}) + \beta_{29}(\text{Rural}) + \beta_{30}(\text{Suburban}) \\ & + \beta_{31}(\text{Teaching experience}) + \beta_{32}(\text{Percent minority students}) + \beta_{33}(\text{School size}) + \beta_{34}(\text{Total hours}) + \beta_{35}(\text{Constraints}) + \varepsilon \end{aligned}$$

Appendix G (continued)

G5. Linear Regression Model for Predicting Teachers' Perceptions of Teacher Cohesion at the National-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) \\ & + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) \\ & + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) \\ & + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) \\ & + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) \\ & + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) + \beta_{20}(\text{Catholic} \times \text{NCLB} \times \text{Total hours}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Total hours}) \\ & + \beta_{22}(\text{Private} \times \text{NCLB} \times \text{Total hours}) + \beta_{23}(\text{Catholic} \times \text{NCLB} \times \text{Constraints}) + \beta_{24}(\text{Public} \times \text{NCLB} \times \text{Constraints}) \\ & + \beta_{25}(\text{Private} \times \text{NCLB} \times \text{Constraints}) + \beta_{26}(\text{Catholic} \times \text{NCLB} \times \text{Control}) + \beta_{27}(\text{Public} \times \text{NCLB} \times \text{Control}) \\ & + \beta_{28}(\text{Private} \times \text{NCLB} \times \text{Control}) + \beta_{29}(\text{Catholic} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{30}(\text{Public} \times \text{NCLB} \times \text{Satisfaction}) \\ & + \beta_{31}(\text{Private} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{32}(\text{Catholic} \times \text{NCLB} \times \text{Career intentions}) + \beta_{33}(\text{Public} \times \text{NCLB} \times \text{Career intentions}) \\ & + \beta_{34}(\text{Private} \times \text{NCLB} \times \text{Career intentions}) + \beta_{35}(\text{Catholic} \times \text{NCLB} \times \text{Routine duties}) + \beta_{36}(\text{Public} \times \text{NCLB} \times \text{Routine duties}) \\ & + \beta_{37}(\text{Private} \times \text{NCLB} \times \text{Routine duties}) + \beta_{38}(\text{Catholic} \times \text{Time after NCLB}) \\ & + \beta_{39}(\text{Public} \times \text{Time after NCLB}) + \beta_{40}(\text{Private} \times \text{Time after NCLB}) + \beta_{41}(\text{Rural}) + \beta_{42}(\text{Suburban}) \\ & + \beta_{43}(\text{Teaching experience}) + \beta_{44}(\text{Percent minority students}) + \beta_{45}(\text{School size}) + \beta_{46}(\text{Total hours}) + \beta_{47}(\text{Constraints}) \\ & + \beta_{48}(\text{Control}) + \beta_{49}(\text{Satisfaction}) + \beta_{50}(\text{Career intentions}) + \beta_{51}(\text{Routine duties}) + \varepsilon \end{aligned}$$

Appendix G (continued)

G6. Linear Regression Model for Predicting Teachers' Perceptions of Principal Support at the National-level

$$\begin{aligned}
 Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) \\
 & + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) \\
 & + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) \\
 & + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) \\
 & + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) \\
 & + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) \\
 & + \beta_{20}(\text{Catholic} \times \text{NCLB} \times \text{Total hours}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Total hours}) + \beta_{22}(\text{Private} \times \text{NCLB} \times \text{Total hours}) \\
 & + \beta_{23}(\text{Catholic} \times \text{NCLB} \times \text{Constraints}) + \beta_{24}(\text{Public} \times \text{NCLB} \times \text{Constraints}) + \beta_{25}(\text{Private} \times \text{NCLB} \times \text{Constraints}) \\
 & + \beta_{26}(\text{Catholic} \times \text{NCLB} \times \text{Control}) + \beta_{27}(\text{Public} \times \text{NCLB} \times \text{Control}) + \beta_{28}(\text{Private} \times \text{NCLB} \times \text{Control}) \\
 & + \beta_{29}(\text{Catholic} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{30}(\text{Public} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{31}(\text{Private} \times \text{NCLB} \times \text{Satisfaction}) \\
 & + \beta_{32}(\text{Catholic} \times \text{NCLB} \times \text{Career intentions}) + \beta_{33}(\text{Public} \times \text{NCLB} \times \text{Career intentions}) + \beta_{34}(\text{Private} \times \text{NCLB} \times \text{Career intentions}) \\
 & + \beta_{35}(\text{Catholic} \times \text{NCLB} \times \text{Routine duties}) + \beta_{36}(\text{Public} \times \text{NCLB} \times \text{Routine duties}) + \beta_{37}(\text{Private} \times \text{NCLB} \times \text{Routine duties}) \\
 & + \beta_{38}(\text{Catholic} \times \text{NCLB} \times \text{Teacher cohesion}) + \beta_{39}(\text{Public} \times \text{NCLB} \times \text{Teacher cohesion}) + \beta_{40}(\text{Private} \times \text{NCLB} \times \text{Teacher cohesion}) \\
 & + \beta_{41}(\text{Catholic} \times \text{Time after NCLB}) + \beta_{42}(\text{Public} \times \text{Time after NCLB}) + \beta_{43}(\text{Private} \times \text{Time after NCLB}) + \beta_{44}(\text{Rural}) + \beta_{45}(\text{Suburban}) + \\
 & \beta_{46}(\text{Teaching experience}) + \beta_{47}(\text{Percent minority students}) + \beta_{48}(\text{School size}) + \beta_{49}(\text{Total hours}) + \beta_{50}(\text{Constraints}) + \beta_{51}(\text{Control}) + \\
 & \beta_{52}(\text{Satisfaction}) + \beta_{53}(\text{Career intentions}) + \beta_{54}(\text{Routine duties}) + \beta_{55}(\text{Teacher cohesion}) + \varepsilon
 \end{aligned}$$

Appendix G (continued)

G7. Linear Regression Model for Predicting Teachers' Career Satisfaction at the National-level

$$\begin{aligned}
 Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) \\
 & + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) \\
 & + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) \\
 & + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) \\
 & + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) \\
 & + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) \\
 & + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) + \beta_{20}(\text{Catholic} \times \text{NCLB} \times \text{Total hours}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Total hours}) \\
 & + \beta_{22}(\text{Private} \times \text{NCLB} \times \text{Total hours}) + \beta_{23}(\text{Catholic} \times \text{NCLB} \times \text{Constraints}) + \beta_{24}(\text{Public} \times \text{NCLB} \times \text{Constraints}) \\
 & + \beta_{25}(\text{Private} \times \text{NCLB} \times \text{Constraints}) + \beta_{26}(\text{Catholic} \times \text{NCLB} \times \text{Control}) + \beta_{27}(\text{Public} \times \text{NCLB} \times \text{Control}) \\
 & + \beta_{28}(\text{Private} \times \text{NCLB} \times \text{Control}) + \beta_{29}(\text{Catholic} \times \text{Time after NCLB}) \\
 & + \beta_{30}(\text{Public} \times \text{Time after NCLB}) + \beta_{31}(\text{Private} \times \text{Time after NCLB}) + \beta_{32}(\text{Rural}) + \beta_{33}(\text{Suburban}) \\
 & + \beta_{34}(\text{Teaching experience}) + \beta_{35}(\text{Percent minority students}) + \beta_{36}(\text{School size}) + \beta_{37}(\text{Total hours}) + \beta_{38}(\text{Constraints}) \\
 & + \beta_{39}(\text{Control}) + \varepsilon
 \end{aligned}$$

Appendix G (continued)

G8 . Linear Regression Model for Predicting Teachers' Career Intentions at the National-level

$$\begin{aligned}
 Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{Catholic} \times \text{NCLB}) + \beta_3(\text{Public} \times \text{NCLB}) + \beta_4(\text{Private} \times \text{NCLB}) + \beta_5(\text{Catholic} \times \text{NCLB} \times \text{Rural}) \\
 & + \beta_6(\text{Public} \times \text{NCLB} \times \text{Rural}) + \beta_7(\text{Private} \times \text{NCLB} \times \text{Rural}) + \beta_8(\text{Catholic} \times \text{NCLB} \times \text{Suburban}) \\
 & + \beta_9(\text{Public} \times \text{NCLB} \times \text{Suburban}) + \beta_{10}(\text{Private} \times \text{NCLB} \times \text{Suburban}) + \beta_{11}(\text{Catholic} \times \text{NCLB} \times \text{Teaching experience}) \\
 & + \beta_{12}(\text{Public} \times \text{NCLB} \times \text{Teaching experience}) + \beta_{13}(\text{Private} \times \text{NCLB} \times \text{Teaching experience}) \\
 & + \beta_{14}(\text{Catholic} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{15}(\text{Public} \times \text{NCLB} \times \text{Percent minority students}) \\
 & + \beta_{16}(\text{Private} \times \text{NCLB} \times \text{Percent minority students}) + \beta_{17}(\text{Catholic} \times \text{NCLB} \times \text{School size}) + \beta_{18}(\text{Public} \times \text{NCLB} \times \text{School size}) \\
 & + \beta_{19}(\text{Private} \times \text{NCLB} \times \text{School size}) + \beta_{20}(\text{Catholic} \times \text{NCLB} \times \text{Total hours}) + \beta_{21}(\text{Public} \times \text{NCLB} \times \text{Total hours}) \\
 & + \beta_{22}(\text{Private} \times \text{NCLB} \times \text{Total hours}) + \beta_{23}(\text{Catholic} \times \text{NCLB} \times \text{Constraints}) + \beta_{24}(\text{Public} \times \text{NCLB} \times \text{Constraints}) \\
 & + \beta_{25}(\text{Private} \times \text{NCLB} \times \text{Constraints}) + \beta_{26}(\text{Catholic} \times \text{NCLB} \times \text{Control}) + \beta_{27}(\text{Public} \times \text{NCLB} \times \text{Control}) \\
 & + \beta_{28}(\text{Private} \times \text{NCLB} \times \text{Control}) + \beta_{29}(\text{Catholic} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{30}(\text{Public} \times \text{NCLB} \times \text{Satisfaction}) \\
 & + \beta_{31}(\text{Private} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{32}(\text{Catholic} \times \text{NCLB} \times \text{Time after NCLB}) \\
 & + \beta_{33}(\text{Public} \times \text{Time after NCLB}) + \beta_{34}(\text{Private} \times \text{Time after NCLB}) + \beta_{35}(\text{Rural}) + \beta_{36}(\text{Suburban}) \\
 & + \beta_{37}(\text{Teaching experience}) + \beta_{38}(\text{Percent minority students}) + \beta_{39}(\text{School size}) + \beta_{40}(\text{Total hours}) + \beta_{41}(\text{Constraints}) \\
 & + \beta_{42}(\text{Control}) + \beta_{43}(\text{Satisfaction}) + \varepsilon
 \end{aligned}$$

Appendix H

H1. Linear Regression Model for Predicting Total Hours Worked at the State-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{WEAKACCTLOWPROF} \times \text{NCLB}) \\ & + \beta_3(\text{WEAKACCTHIGHPROF} \times \text{NCLB}) + \beta_4(\text{STRONGACCTLOWPROF} \times \text{NCLB}) \\ & + \beta_5(\text{STRONGACCTHIGHPROF} \times \text{NCLB}) \\ & + \beta_6(\text{WEAKACCTLOWPROF} \times \text{Time after NCLB}) \\ & + \beta_7(\text{WEAKACCTHIGHPROF} \times \text{Time after NCLB}) \\ & + \beta_8(\text{STRONGACCTLOWPROF} \times \text{Time after NCLB}) \\ & + \beta_9(\text{STRONGACCTHIGHPROF} \times \text{Time after NCLB}) + \beta_{10}(\text{PPE}) \\ & + \beta_{11}(\text{Percent Minority Students}) + \beta_{12}(\text{Percent FRPL}) + \varepsilon \end{aligned}$$

Appendix H (continued)

H2. Linear Regression Model for Predicting Teachers' Perceptions of Routine Duties at the State-level

$$\begin{aligned}
 Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{WEAKACCTLOWPROF} \times \text{NCLB}) + \beta_3(\text{WEAKACCTHIGHPROF} \times \text{NCLB}) \\
 & + \beta_4(\text{STRONGACCTLOWPROF} \times \text{NCLB}) + \beta_5(\text{STRONGACCTHIGHPROF} \times \text{NCLB}) \\
 & + \beta_6(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\
 & + \beta_7(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\
 & + \beta_8(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\
 & + \beta_9(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\
 & + \beta_{10}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Constraints}) + \beta_{11}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Constraints}) \\
 & + \beta_{12}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Constraints}) + \beta_{13}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Constraints}) \\
 & + \beta_{14}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Control}) + \beta_{15}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Control}) \\
 & + \beta_{16}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Control}) + \beta_{17}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Control}) \\
 & + \beta_{18}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{19}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Satisfaction}) \\
 & + \beta_{20}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{21}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Satisfaction}) \\
 & + \beta_{22}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Career intentions}) \\
 & + \beta_{23}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Career intentions}) \\
 & + \beta_{24}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Career intentions}) \\
 & + \beta_{25}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Career intentions}) \\
 & + \beta_{26}(\text{WEAKACCTLOWPROF} \times \text{Time After NCLB}) + \beta_{27}(\text{WEAKACCTHIGHPROF} \times \text{Time After NCLB}) \\
 & + \beta_{28}(\text{STRONGACCTLOWPROF} \times \text{Time After NCLB}) + \beta_{29}(\text{STRONGACCTHIGHPROF} \times \text{Time After NCLB}) \\
 & + \beta_{30}(\text{PPE}) + \beta_{31}(\text{Percent Minority Students}) + \beta_{32}(\text{Percent FRPL}) + \beta_{33}(\text{Total Hours Worked}) \\
 & + \beta_{34}(\text{Constraints}) + \beta_{35}(\text{Satisfaction}) + \beta_{36}(\text{Career Intentions}) + \varepsilon
 \end{aligned}$$

Appendix H (continued)

H3. Linear Regression Model for Predicting Teachers' Perceptions of Constraints at the State-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\textit{Year}) + \beta_2(\textit{WEAKACCTLOWPROF} \times \textit{NCLB}) + \beta_3(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB}) \\ & + \beta_4(\textit{STRONGACCTLOWPROF} \times \textit{NCLB}) + \beta_5(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB}) \\ & + \beta_6(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\ & + \beta_7(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\ & + \beta_8(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\ & + \beta_9(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\ & + \beta_{10}(\textit{WEAKACCTLOWPROF} \times \textit{Time After NCLB}) + \beta_{11}(\textit{WEAKACCTHIGHPROF} \times \textit{Time After NCLB}) \\ & + \beta_{12}(\textit{STRONGACCTLOWPROF} \times \textit{Time After NCLB}) + \beta_{13}(\textit{STRONGACCTHIGHPROF} \times \textit{Time After NCLB}) \\ & + \beta_{14}(\textit{PPE}) + \beta_{15}(\textit{Percent Minority Students}) + \beta_{16}(\textit{Percent FRPL}) + \beta_{17}(\textit{Total Hours Worked}) + \varepsilon \end{aligned}$$

Appendix H (continued)

H4. Linear Regression Model for Predicting Teachers' Perceptions of Control at the State-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(Year) + \beta_2(WEAKACCTLOWPROF \times NCLB) + \beta_3(WEAKACCTHIGHPROF \times NCLB) \\ & + \beta_4(STRONGACCTLOWPROF \times NCLB) + \beta_5(STRONGACCTHIGHPROF \times NCLB) \\ & + \beta_6(WEAKACCTLOWPROF \times NCLB \times Total\ Hours\ Worked) \\ & + \beta_7(WEAKACCTHIGHPROF \times NCLB \times Total\ Hours\ Worked) \\ & + \beta_8(STRONGACCTLOWPROF \times NCLB \times Total\ Hours\ Worked) \\ & + \beta_9(STRONGACCTHIGHPROF \times NCLB \times Total\ Hours\ Worked) \\ & + \beta_{10}(WEAKACCTLOWPROF \times NCLB \times Constraints) + \beta_{11}(WEAKACCTHIGHPROF \times NCLB \times Constraints) \\ & + \beta_{12}(STRONGACCTLOWPROF \times NCLB \times Constraints) + \beta_{13}(STRONGACCTHIGHPROF \times NCLB \times Constraints) \\ & + \beta_{14}(WEAKACCTLOWPROF \times Time\ After\ NCLB) + \beta_{15}(WEAKACCTHIGHPROF \times Time\ After\ NCLB) \\ & + \beta_{16}(STRONGACCTLOWPROF \times Time\ After\ NCLB) + \beta_{17}(STRONGACCTHIGHPROF \times Time\ After\ NCLB) \\ & + \beta_{18}(PPE) + \beta_{19}(Percent\ Minority\ Students) + \beta_{20}(Percent\ FRPL) + \beta_{21}(Total\ Hours\ Worked) \\ & + \beta_{22}(Constraints) + \varepsilon \end{aligned}$$

Appendix H (continued)

H5. Linear Regression Model for Predicting Teachers' Perceptions of Teacher Cohesion at the State-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{WEAKACCTLOWPROF} \times \text{NCLB}) + \beta_3(\text{WEAKACCTHIGHPROF} \times \text{NCLB}) \\ & + \beta_4(\text{STRONGACCTLOWPROF} \times \text{NCLB}) + \beta_5(\text{STRONGACCTHIGHPROF} \times \text{NCLB}) \\ & + \beta_6(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_7(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_8(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_9(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_{10}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Constraints}) + \beta_{11}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Constraints}) \\ & + \beta_{12}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Constraints}) + \beta_{13}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Constraints}) \\ & + \beta_{14}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Control}) + \beta_{15}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Control}) \\ & + \beta_{16}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Control}) + \beta_{17}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Control}) \\ & + \beta_{18}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{19}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Satisfaction}) \\ & + \beta_{20}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{21}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Satisfaction}) \\ & + \beta_{22}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Career Intentions}) + \beta_{23}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Career Intentions}) \\ & + \beta_{24}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Career Intentions}) \\ & + \beta_{25}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Career Intentions}) \\ & + \beta_{26}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Routine Duties}) + \beta_{27}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Routine Duties}) \\ & + \beta_{28}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Routine Duties}) \\ & + \beta_{29}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Routine Duties}) + \beta_{30}(\text{WEAKACCTLOWPROF} \times \text{Time After NCLB}) \\ & + \beta_{31}(\text{WEAKACCTHIGHPROF} \times \text{Time After NCLB}) + \beta_{32}(\text{STRONGACCTLOWPROF} \times \text{Time After NCLB}) \\ & + \beta_{33}(\text{STRONGACCTHIGHPROF} \times \text{Time After NCLB}) + \beta_{34}(\text{PPE}) + \beta_{35}(\text{Percent Minority Students}) \\ & + \beta_{36}(\text{Percent FRPL}) + \beta_{37}(\text{Total Hours Worked}) + \beta_{38}(\text{Constraints}) + \beta_{39}(\text{Satisfaction}) \\ & + \beta_{40}(\text{Career Intentions}) + \beta_{41}(\text{Routine Duties}) + \varepsilon \end{aligned}$$

Appendix H (continued)

H6. Linear Regression Model for Predicting Teachers' Perceptions of Principal Support at the State-level

$$\begin{aligned} Y = & \beta_0 + \beta_1(\text{Year}) + \beta_2(\text{WEAKACCTLOWPROF} \times \text{NCLB}) + \beta_3(\text{WEAKACCTHIGHPROF} \times \text{NCLB}) \\ & + \beta_4(\text{STRONGACCTLOWPROF} \times \text{NCLB}) + \beta_5(\text{STRONGACCTHIGHPROF} \times \text{NCLB}) \\ & + \beta_6(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_7(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_8(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_9(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Total Hours Worked}) \\ & + \beta_{10}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Constraints}) + \beta_{11}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Constraints}) \\ & + \beta_{12}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Constraints}) + \beta_{13}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Constraints}) \\ & + \beta_{14}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Control}) + \beta_{15}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Control}) \\ & + \beta_{16}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Control}) + \beta_{17}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Control}) \\ & + \beta_{18}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{19}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Satisfaction}) \\ & + \beta_{20}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Satisfaction}) + \beta_{21}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Satisfaction}) \\ & + \beta_{22}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Career Intentions}) + \beta_{23}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Career Intentions}) \\ & + \beta_{24}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Career Intentions}) \\ & + \beta_{25}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Career Intentions}) \\ & + \beta_{26}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Routine Duties}) + \beta_{27}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Routine Duties}) \\ & + \beta_{28}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Routine Duties}) + \beta_{29}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Routine Duties}) \\ & + \beta_{30}(\text{WEAKACCTLOWPROF} \times \text{NCLB} \times \text{Teacher Cohesion}) + \beta_{31}(\text{WEAKACCTHIGHPROF} \times \text{NCLB} \times \text{Teacher Cohesion}) \\ & + \beta_{32}(\text{STRONGACCTLOWPROF} \times \text{NCLB} \times \text{Teacher Cohesion}) \\ & + \beta_{33}(\text{STRONGACCTHIGHPROF} \times \text{NCLB} \times \text{Teacher Cohesion}) \\ & + \beta_{34}(\text{WEAKACCTLOWPROF} \times \text{Time After NCLB}) + \beta_{35}(\text{WEAKACCTHIGHPROF} \times \text{Time After NCLB}) \\ & + \beta_{36}(\text{STRONGACCTLOWPROF} \times \text{Time After NCLB}) + \beta_{37}(\text{STRONGACCTHIGHPROF} \times \text{Time After NCLB}) \end{aligned}$$

Appendix H (continued)

H6 (continued). Linear Regression Model for Predicting Teachers' Perceptions of Principal Support at the State-level

$$\begin{aligned} &+ \beta_{34}(PPE) + \beta_{35}(\text{Percent Minority Students}) + \beta_{36}(\text{Percent FRPL}) + \beta_{37}(\text{Total Hours Worked}) + \beta_{38}(\text{Constraints}) \\ &+ \beta_{39}(\text{Satisfaction}) + \beta_{40}(\text{Career Intentions}) + \beta_{41}(\text{Routine Duties}) + \beta_{41}(\text{Teacher Cohesion}) + \varepsilon \end{aligned}$$

Appendix H (continued)

H7. Linear Regression Model for Predicting Teachers' Career Satisfaction at the State-level

$$\begin{aligned}
 Y = & \beta_0 + \beta_1(\textit{Year}) + \beta_2(\textit{WEAKACCTLOWPROF} \times \textit{NCLB}) + \beta_3(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB}) \\
 & + \beta_4(\textit{STRONGACCTLOWPROF} \times \textit{NCLB}) + \beta_5(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB}) \\
 & + \beta_6(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_7(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_8(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_9(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_{10}(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Constraints}) + \beta_{11}(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Constraints}) \\
 & + \beta_{12}(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Constraints}) + \beta_{13}(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Constraints}) \\
 & + \beta_{14}(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Control}) + \beta_{15}(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Control}) \\
 & + \beta_{16}(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Control}) + \beta_{17}(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Control}) \\
 & + \beta_{18}(\textit{WEAKACCTLOWPROF} \times \textit{Time After NCLB}) + \beta_{19}(\textit{WEAKACCTHIGHPROF} \times \textit{Time After NCLB}) \\
 & + \beta_{20}(\textit{STRONGACCTLOWPROF} \times \textit{Time After NCLB}) + \beta_{21}(\textit{STRONGACCTHIGHPROF} \times \textit{Time After NCLB}) \\
 & + \beta_{22}(\textit{PPE}) + \beta_{23}(\textit{Percent Minority Students}) + \beta_{24}(\textit{Percent FRPL}) + \beta_{25}(\textit{Total Hours Worked}) \\
 & + \beta_{26}(\textit{Constraints}) + \varepsilon
 \end{aligned}$$

Appendix H (continued)

H8. Linear Regression Model for Predicting Teachers' Career Intentions at the State-level

$$\begin{aligned}
 Y = & \beta_0 + \beta_1(\textit{Year}) + \beta_2(\textit{WEAKACCTLOWPROF} \times \textit{NCLB}) + \beta_3(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB}) \\
 & + \beta_4(\textit{STRONGACCTLOWPROF} \times \textit{NCLB}) + \beta_5(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB}) \\
 & + \beta_6(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_7(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_8(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_9(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Total Hours Worked}) \\
 & + \beta_{10}(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Constraints}) + \beta_{11}(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Constraints}) \\
 & + \beta_{12}(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Constraints}) + \beta_{13}(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Constraints}) \\
 & + \beta_{14}(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Control}) + \beta_{15}(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Control}) \\
 & + \beta_{16}(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Control}) + \beta_{17}(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Control}) \\
 & + \beta_{18}(\textit{WEAKACCTLOWPROF} \times \textit{NCLB} \times \textit{Satisfaction}) + \beta_{19}(\textit{WEAKACCTHIGHPROF} \times \textit{NCLB} \times \textit{Satisfaction}) \\
 & + \beta_{20}(\textit{STRONGACCTLOWPROF} \times \textit{NCLB} \times \textit{Satisfaction}) + \beta_{21}(\textit{STRONGACCTHIGHPROF} \times \textit{NCLB} \times \textit{Satisfaction}) \\
 & + \beta_{22}(\textit{WEAKACCTLOWPROF} \times \textit{Time After NCLB}) + \beta_{23}(\textit{WEAKACCTHIGHPROF} \times \textit{TIME AFTER NCLB}) \\
 & + \beta_{24}(\textit{STRONGACCTLOWPROF} \times \textit{Time After NCLB}) + \beta_{25}(\textit{STRONGACCTHIGHPROF} \times \textit{Time After NCLB}) \\
 & + \beta_{26}(\textit{PPE}) + \beta_{27}(\textit{Percent Minority Students}) + \beta_{28}(\textit{Percent FRPL}) \\
 & + \beta_{29}(\textit{Total Hours Worked}) + \beta_{30}(\textit{Constraints}) + \beta_{31}(\textit{Satisfaction}) + \varepsilon
 \end{aligned}$$

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Vita

ACADEMIC BACKGROUND:

| | | | |
|-------|--------------------------------|------|----------------------|
| Ph.D. | University of Illinois-Chicago | 2013 | Educational Policy |
| M.S. | Purdue University | 2005 | Child Development |
| B.A. | Westminster College | 2002 | Psychology & Spanish |

STUDY ABROAD EXPERIENCES:

| | |
|--------------------|----------------------|
| Cuernavaca, Mexico | Summer Session 2002 |
| Córdoba, Argentina | Spring Semester 2000 |

WORK HISTORY:

American Institutes for Research, Brookfield, Wisconsin **2013-present**
Senior Researcher

Under the auspices of the Regional Educational Laboratory - Midwest,

- Oversee external research alliances designed to generate research, evaluation, technical assistance, and dissemination strategies
- Manage internal processes and budget to support the research alliances

Learning Point Associates, Naperville, Illinois **2006-2009**
Senior Researcher

Under the auspices of the Regional Educational Laboratory - Midwest,

- Assisted in the design and completion of various needs-sensing research and dissemination efforts
- Conducted research syntheses in response to field requests
- Communicated research results to practitioners
- Managed projects including a state-wide evaluation of full-day kindergarten
- Served as a peer reviewer

Purdue University, West Lafayette, Indiana **2005-2006**
Early Childhood Educator

- Supervised and coached undergraduate students in early childhood education
- Taught 2-5-year-olds enrolled in the Purdue Child Development Laboratory

Institute of Education Sciences, Washington, DC **2004-2005**
Associate Research Scientist/Specialist

- Synthesized information from education research and related areas
- Prepared written products to convey research-based knowledge to a variety of audiences
- Assisted in dissemination and outreach activities regarding education research

Purdue University, West Lafayette, Indiana

Research Assistant

2002-2004

- Evaluated a federally funded literacy development program for early childhood teachers, conducted classroom observations; measured children's literacy development using a battery of tests, created and maintained the database for the two year multi-site study
- Translated research materials for Spanish speaking parents and children
- Updated literature reviews for publication purposes, conducted a mixed methods analysis using quantitative questionnaire data and qualitative observational data
- Co-authored a report for the U.S. Department of Defense addressing the issue of child care personnel turnover in the military

REPORTS AND PUBLICATIONS

Brandt, C., Mathers, C., Oliva, M., Brown-Sims, M., & Hess, J. (2007). *Examining district guidance to schools on teacher evaluation policies in the Midwest Region* (Issues & Answers Report, REL 2007–No. 030). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. Retrieved from <http://ies.ed.gov/ncee/edlabs>.

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Mathers, C., Oliva, M., & Laine, S. (2008). *Improving instruction through effective teacher evaluation: Options for states and districts*. Naperville, IL: Learning Point Associates.

Mathers, C., Young, T., Marchand, J., Zajano, N., & Cantrell, S. (2006). *Iowa's teacher evaluation policies and procedures: Comparing district policies with school practices*. Naperville, IL: Regional Educational Laboratory Midwest.

McMullen, M. B., Elicker, J., Goetze, G., Huang, J. H., Lee, S. M., Mathers, C., Wen, X. & Yang, H Y. (2006). Using collaborative assessment to examine the relationship between self-reported beliefs and the documentable practices of preschool teachers. *Early Childhood Education Journal*, 33(6).

Olivia, M., Mathers, C., & Laine, S. (2009). Effective evaluation. *Principal Leadership*, 9(7), 16-21.

Schwarz, R., MacDermid, S., Swan, R., Robbins, N., & Mathers, C. (2003). *Staffing your child care center: A theoretical and practical approach*. West Lafayette, IN: Purdue University, Military Family Research Institute.

REPORTS AND PUBLICATIONS (continued)

van der Ploeg, A., Mathers, C., Rowland, C., & Guthrie, J. (2006). *Creating a 21st century framework for student learning: Integrated design options for learner performance and teacher pay for performance*. Naperville, IL: Learning Point Associates.

RECENT AWARDS:

| | |
|------------------------------------|-----------|
| UIC Graduate College Fellowship | 2006 |
| Chicago Consular Corps Scholarship | 2007-2008 |

PRESENTATIONS:

Brandt, W.C. & Mathers, C. (April 2007). *Opening the teacher evaluation black box: Comparing research with practice*. Paper presented at the annual meeting of the American Educational Research Association Conference, Chicago, IL.

Mathers, C. & Powell, D. (June 2006). *Children's contributions to early literacy supports in Head Start Families*. Poster presentation at the National Head Start Research Conference, Washington, D.C.

Powell, D., Diamond, K., Bojczyk, K., & Mathers, C. (June 2004). *Fostering language and literacy development: Design and effects of a professional development program*. Poster presentation at the National Head Start Research Conference, Washington, D.C.

Powell, D., Diamond, K., Bojczyk, K., & Mathers, C. (October 2003). *Early language and literacy development: Fostering classroom-based interventions in Head Start*. Poster presentation at the National Head Start Research Conference, Washington, D.C.